15¢

the OIL WEEKLY

OIL and GAS ENGINEERING

INTERNATIONAL AUTHORITY FOR THE PRODUCING AND PIPE LINE INDUSTRY

TWO WEEKS NEWS INTERPRETED

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SPEED IN HARDEST FORMATIONS

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TYPE "HR" Available in Popular Sizes 3¾" and Larger

Hughes "HR" Tricones are designed for maximum speed in the hardest formations, which require a bit with sturdy, closely-spaced teeth combining both crushing and chipping actions.

Because of the abrasive nature of these formations, the cones are made to run in an approximately true rolling manner to minimize wear.

Whatever the formation encountered, there is a Hughes Rock Bit "Tailor-Made" for maximum speed and economy.

HUGHES TOOL COMPANY, HOUSTON, TEXAS

GREATER ADVANTAGES

For Roller Chain Drives with

MORSE ROLLER CHAINS

CHANNEL LUBRICATED

Channels, rolled into the bushings, lead oil through sideplates to the pins, where it spreads over entire pin and bushing surfaces. Oil keeps wear out!

INTERCHANGEABLE

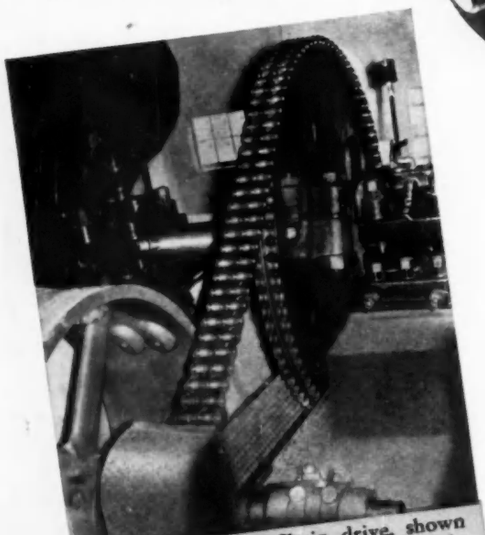
Morse Roller Chain is built to American Standard dimensions, is interchangeable with all other standard chains (no adapter link) on all standard sprockets.

GROUND ROLLERS

Rollers are turned from solid bar special alloy steel. Bushings are cold rolled. Pins are drawn from hardened steel.

TIGHTER FIT FOR PINS AND BUSHINGS

More accurate holes in sideplates, in all pitches, insure tighter fits for pins and bushings and longer life.



The Morse Roller Chain drive, shown above, pumps a 2500 foot well. The chain is 2½" pitch, double, running on 17 and 85 tooth sprockets at 60 and 12 r.p.m. respectively. The drive transmits 60 h.p.

ROLLER CHAIN drives get new advantages, equipped with Morse Roller Chain. Positive lubrication at the heart of the chain—the pin and bushing surfaces—minimizes wear, makes for smoother, quieter operation, freedom from service and maintenance costs, and longer drive life.

Morse Roller Chain—interchangeable, channel lubricated—brings these new standards of economical performance and service to roller chain users at the cost of ordinary drives.

Available in a complete range of sizes, single and multiple widths. Drives up to 100 h.p. are carried in stock for immediate delivery at key points throughout the country.

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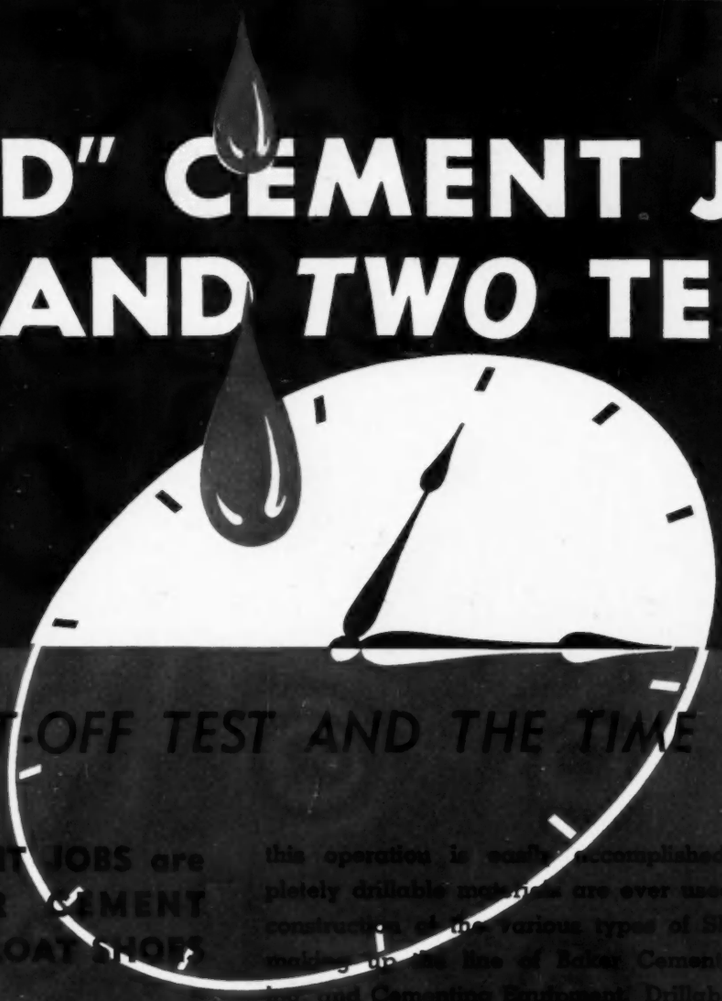
MORSE *positive* DRIVES

MORSE CHAIN COMPANY ITHACA N. Y. DIVISION BORG-WARNER CORP.

A "GOOD" CEMENT JOB WILL STAND *TWO* TESTS



THE WATER SHUT-OFF TEST AND THE TIME TEST . . .

. . . And "GOOD" CEMENT JOBS are *ROUTINE* with BAKER CEMENT WASH-DOWN WHIRLER FLOAT SHOES

HERE'S WHY:

A "GOOD" cement job must do more than test dry immediately following completion . . . it must meet the test of time and *stay* dry . . . . and the only way it will stay dry is for a uniform body of cement to have been placed entirely around the shoe and for a maximum distance up the pipe. That's the kind of a cement job that the Baker Cement Wash-Down Whirler Float Shoe (after it has safely landed the casing) performs . . . it affords best possible distribution of the cement slurry with the hazard of channeling reduced to a minimum. Also, after the cement job is completed and it is time to drill out the Shoe, this operation is easily accomplished, as only completely drillable materials are ever used for the internal construction of the various types of Shoes and Collars making up the line of Baker Cement Guiding, Floating and Cementing Equipment. Drillability is important!

Remember, it costs no more for a "TWO TEST" Cement Job done with a BAKER CEMENT WASH-DOWN WHIRLER FLOAT SHOE.

For Complete Details, See Pages 223-225 in the 1940 Composite Catalog

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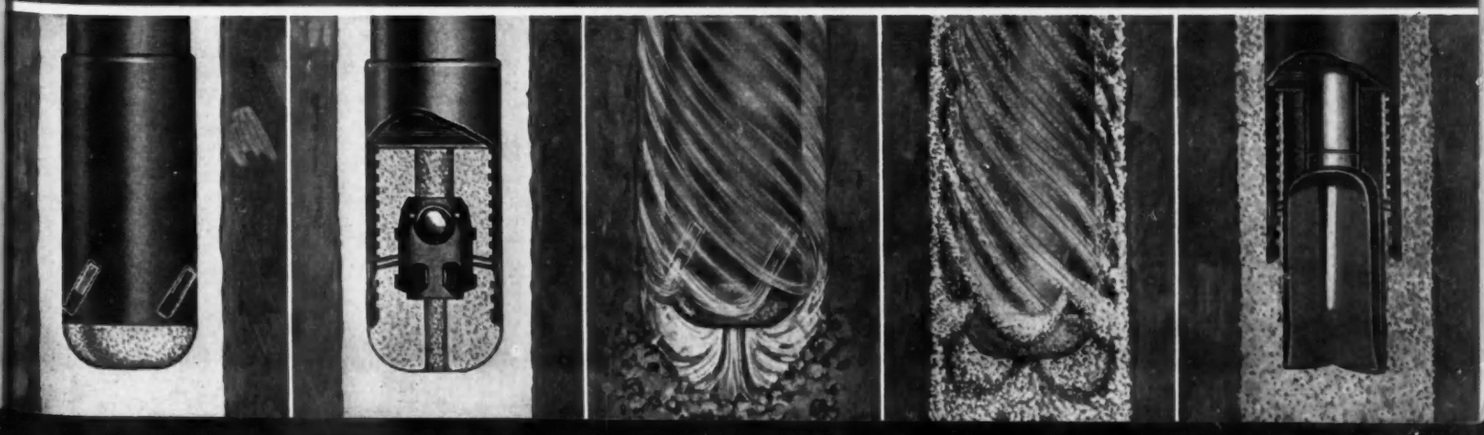
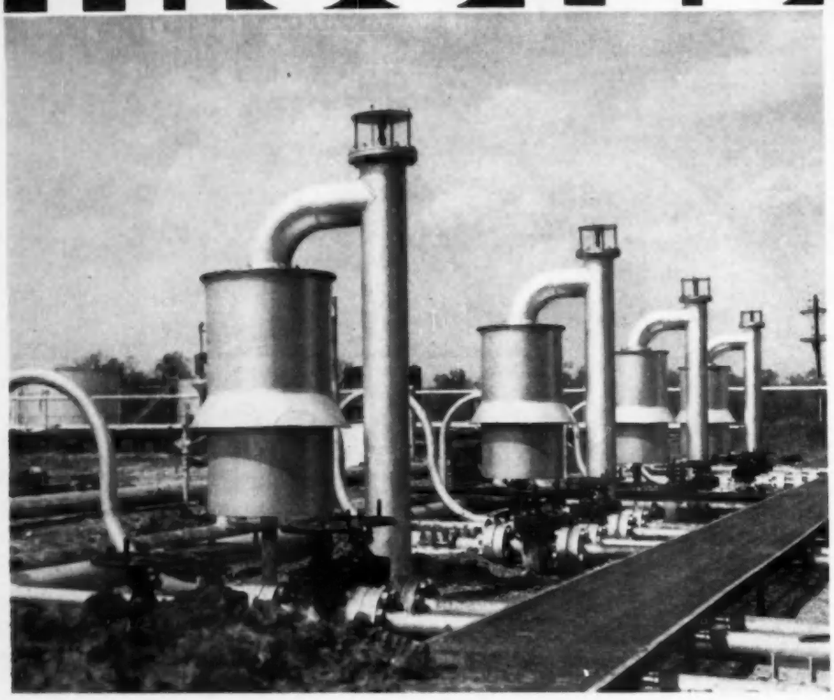


TRUSTED



ONE word, TRUSTED, tells why W-K-M valves are found in the toughest oil field service. One word, TRUSTED, tells why these W-K-M valve bodies are cast by Lebanon from one of their Circle L Alloy Steels. The 4-inch W-K-M valves in this re-cycling plant must pass a 10,000-pound per square inch pressure test. That calls for the use of a high strength steel. And it also calls for careful work in the foundry by skilled workmen who know their business and take pride in work well done.

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CIRCLE L

is a Medium Manganese Steel which under our customary heat treatment develops much higher physical properties than ordinary carbon steels. At the same time it retains satisfactory machining qualities and takes good machine finishes. One of the 30 Lebanon Alloys will probably fit your purpose.

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Original American Licensee George Fischer (Swiss Chamotte) Method

Lebanon STAINLESS AND SPECIAL ALLOY Steel Castings

Looking Ahead

WITH THE EDITOR

A **WHALE OF A STORY** sometimes can be told with a few figures. We submit the following as an example:

Gulf Coast Facts in Figures

Cumulative Crude Oil Production: (July 1, 1940)

Texas Gulf Coast	1,270,095,115 barrels
Louisiana Gulf Coast	510,491,138 barrels
Total	1,780,586,253 barrels

Estimated Ultimate Recovery: (July 1, 1940)

Texas Gulf Coast	4,046,023,185 barrels
Louisiana Gulf Coast	1,607,648,162 barrels
Total	5,653,671,247 barrels

Change in Crude Reserves: (July 1, 1938 to July 1, 1940)

Texas Gulf Coast	+ 308,410,440 barrels
Louisiana Gulf Coast	+ 639,924,569 barrels
Total	+ 948,335,009 barrels

Amount of Proven Acreage. (July 1, 1940)

Texas Gulf Coast:	
Producing Acreage	118,245 acres
Undeveloped Acreage	34,520 acres
Total	152,765 acres
Louisiana Gulf Coast:	
Producing Acreage	24,654 acres
Undeveloped Acreage	22,260 acres
Total	46,914 acres
Total Texas-Louisiana Gulf Coast Proven Acreage	199,679 acres

Number of Producing Fields: (July 1, 1940)

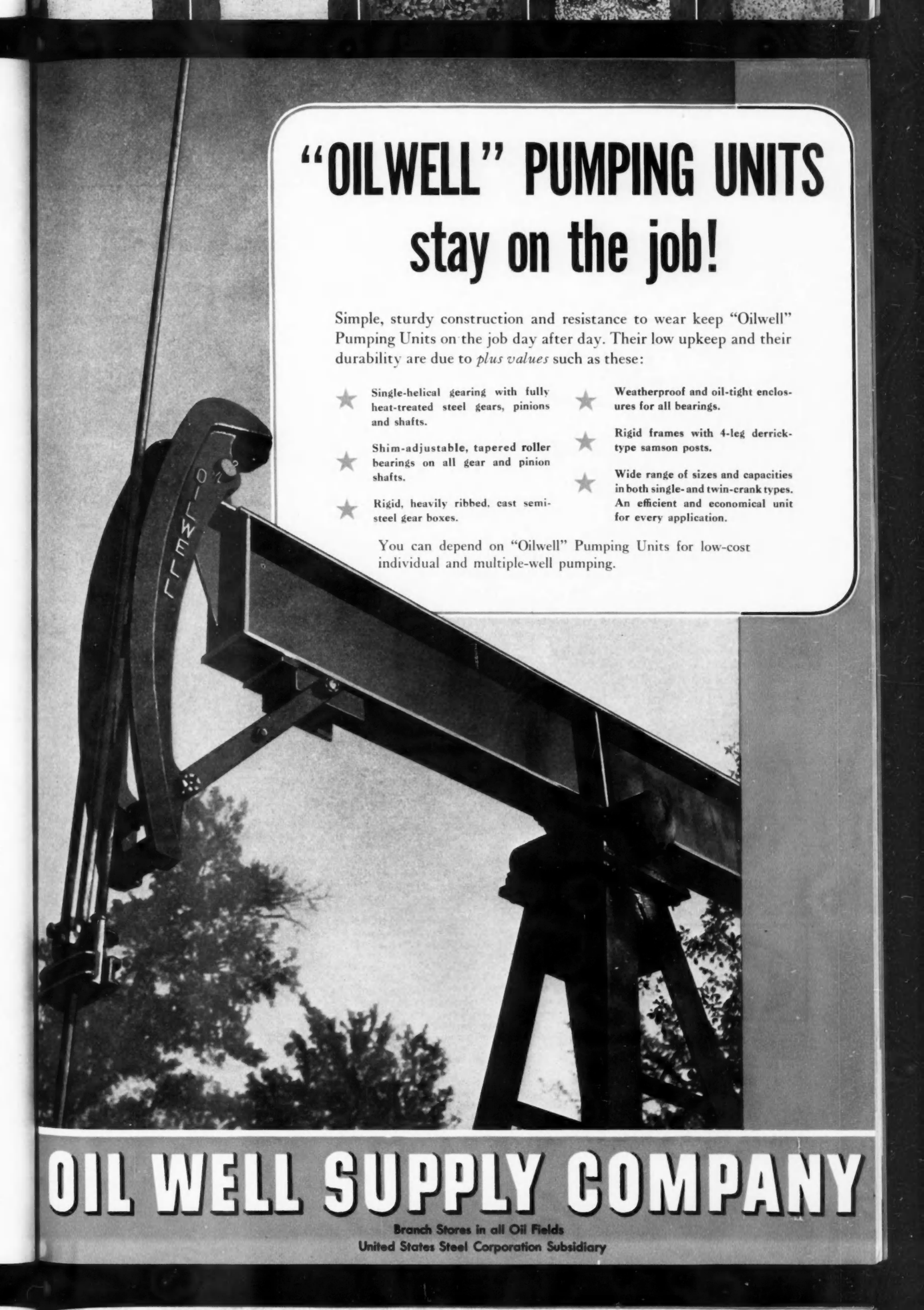
Texas Gulf Coast	123 fields
Louisiana Gulf Coast	103 fields
Total	226 fields

Number of Prospective Fields: (July 1, 1940)

Texas Gulf Coast	201 fields
Louisiana Gulf Coast	199 fields
Total	400 fields

And if the above is not enough for our statistically minded readers we might add that the Texas-Louisiana Gulf Coast during the first half of the year accounted for 64 percent of wells drilled to depths below 10,000 feet with a total of 118 such wells. Summed up, all of this represents an estimated development expenditure in the Coastal area this year of 118 million dollars which discounting the New Deal is still a whale of a lot of money. These facts are why oil men and their equipment suppliers will want to study the Gulf Coast Engineering and Development Number of THE OIL WEEKLY to be issued September 23.

The OIL WEEKLY, Published every Monday. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.



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Simple, sturdy construction and resistance to wear keep "Oilwell" Pumping Units on the job day after day. Their low upkeep and their durability are due to *plus values* such as these:

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You can depend on "Oilwell" Pumping Units for low-cost individual and multiple-well pumping.

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GOOD SERVICE for

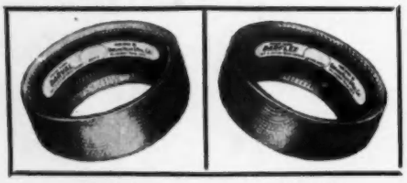
. . . and these

DARCOVA VALVE CUPS

were still in Good Condition!

Ten years and more is a long time—a long time for a single set of valve cups to give service on an average of three hours a day—**six days a week!** Yet that's the record set by "Darcova" in a well in Tulsa, Oklahoma. We'll send you complete details if you're interested—and you surely **should** be . . . if you want to benefit by the service and the savings for which these ORIGINAL COMPOSITION VALVE CUPS are famous!

DARCOVA
(Orange Label)
the standard for more than thirty years under severe service at all depths



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for super-service in wells to approximately 2,000 feet in depth.

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the popular favorite for wells to 800 feet in depth.

DARCOVA PUMCUPS for Pumps

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DARLING VALVE & MFG. CO.
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Letters to the Editor

Carbide Paraffin Removal

SIRS:

Reference is made to article "Removing Paraffin from Pipe and Sand Face with Carbide," by F. R. Cozzens, in your issue of August 19.

Will you be good enough to advise if this will work in breaking down face of sand in wells producing asphaltic crude? Also names and addresses of manufacturers of carbide.

GEO. W. JARVIS,
E. T. Williams Oil Company,
Casper, Wyoming.

SIRS:

The article on paraffin removal with carbide in THE OIL WEEKLY of August 19, has been read with much interest for the reason that we have just completed the treatment of one of our wells near Stinnett, Texas, by a special chemical process recently developed . . . I do not know the formula used in treating our well, and the treatment did help to some extent by bringing the fluid level up from 87 feet to approximately 500 feet.

The chemical engineer in charge of this work told us we should never use carbide in the treatment of our wells for the reason it left a scum on the face of the pay that would seal it off completely in a short time.

I would like to find out if there is anything to the statement that the carbide would form a scum.

I would also like to know if it is absolutely necessary that the bottom-hole salt water be removed before the carbide treatment can be effective. In other words, assuming that it is not possible to completely bail out all the bottom-hole water, can the well still be treated effectively with carbide?

I would also like to know what procedure to follow where the size of the shot hole is not known. In other words, if we do not know what the size of the shot hole is, approximately how much fresh water would it be logical to run back in the hole. Also, Mr. Cozzens states that 100 pounds of carbide be used to a barrel of water. This seems like a very strong solution and I would like to know to what extent the carbide quantity can be reduced without killing the effectiveness of the treatment. For example, could we use 100 pounds of carbide to, say, 4 barrels of water, and still get an effective treatment? Also after the carbide is dumped in the hole is it considered advisable to run in with a bailer to agitate the solution or should one merely let it agitate itself for an hour and then start bailing it out? Would it help the treatment any if hot water was run in the hole and carbide added immediately?

CY RIEGER,
Oil Producer,
Amarillo, Texas

Author Cozzens has been asked to answer the questions raised and he replies as follows: "To the question regarding the effectiveness of carbide in wells producing asphaltic crude, I cannot make a direct answer since I am not familiar with the type of sand. Effectiveness can be demonstrated roughly by placing a three- or four-ounce piece of the sand in a pail with a quart of fresh water. Drop in a tablespoonful of carbide and after agitation has ceased, examine the sand and notice if the surface has been softened. If the sand collects and retains paraffin, I can see no reason why carbide would not do a satisfactory cleaning job.

. . . "I have never know carbide to form a scum in any of the sand when used in Eastern stripper fields and I do not believe that it would occur in this case because a very important secondary action of carbide is that it causes the sand face to slough off or cave, thus presenting a new clean surface after treatment. The presence of salt water in the bottom of a shot-hole would not necessarily cause the carbide to be ineffective, but this has a close connection with the question regarding procedure when the size of the shot-hole is not known. The rise in temperature and amount of agitation in the well is controlled by the proportion of carbide to water. If you are not sure of the shot-hole size or the amount of water which cannot be bailed, I would increase the amount of carbide rather than skimp it. I doubt if 100 pounds of carbide to 4 barrels of water would give a very effective treatment. If the solution is strong enough, it is not necessary to run bailer to induce agitation. I do not believe that heating the water would improve the action sufficiently to justify extra bother and expense. . . . Carbide is sold by many manufacturing companies and should be available from local hardware, welding or mining supply stores."

Lucas Memorial

SIRS:

That was another fine write-up which you gave us in your issue of September 2. Your Editor was in error though when he stated that "No direct funds will be solicited for the construction of the monument, etc." As a matter of fact, the monument idea would be a total failure if left to voluntary contributions. We have already sent out over 40 letters making solicitation and have about 60 yet to be written and mailed.

I am entirely pleased though, so far, at the response to our appeal and to the public's reaction generally to the plan.

J. COOKE WILSON.
Lucas Gusher Monument Association
Beaumont, Texas

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THE OIL WEEKLY

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The Oil Man's Calendar

SEPT. 9–13	American Chemical Society, Detroit.
10	American Institute of Mining & Metallurgical Engineers, East Texas Section, Kilgore.
18–20	National Petroleum Association, Atlantic City, N. J.
30–Oct. 1	Liquefied Petroleum Gas Association, Omaha, Neb.
OCT. 4	Western Petroleum Refineries Association, Regional Meeting, Wichita.
7–10	American Gas Association, Atlantic City, N. J.
7–11	National Safety Congress and Exposition, Chicago.
15	National Stripper Well Association, Dallas.
16–18	Independent Petroleum Association of America, Dallas.
17–18	American Institute of Mining & Metallurgical Engineers, Petroleum Division, Los Angeles.
24–26	American Institute of Mining & Metallurgical Engineers, Petroleum Division, Tulsa.
25	Western Petroleum Refiners Association, Regional Meeting, Shreveport.
31–Nov. 2	Texas Mid-Continent Oil & Ga Association, Ft. Worth.
NOV. 1	California Natural Gasoline Association, Los Angeles.
	American Association of Petroleum Geologists, Pacific Section, Los Angeles.
11–15	American Petroleum Institute, Chicago.

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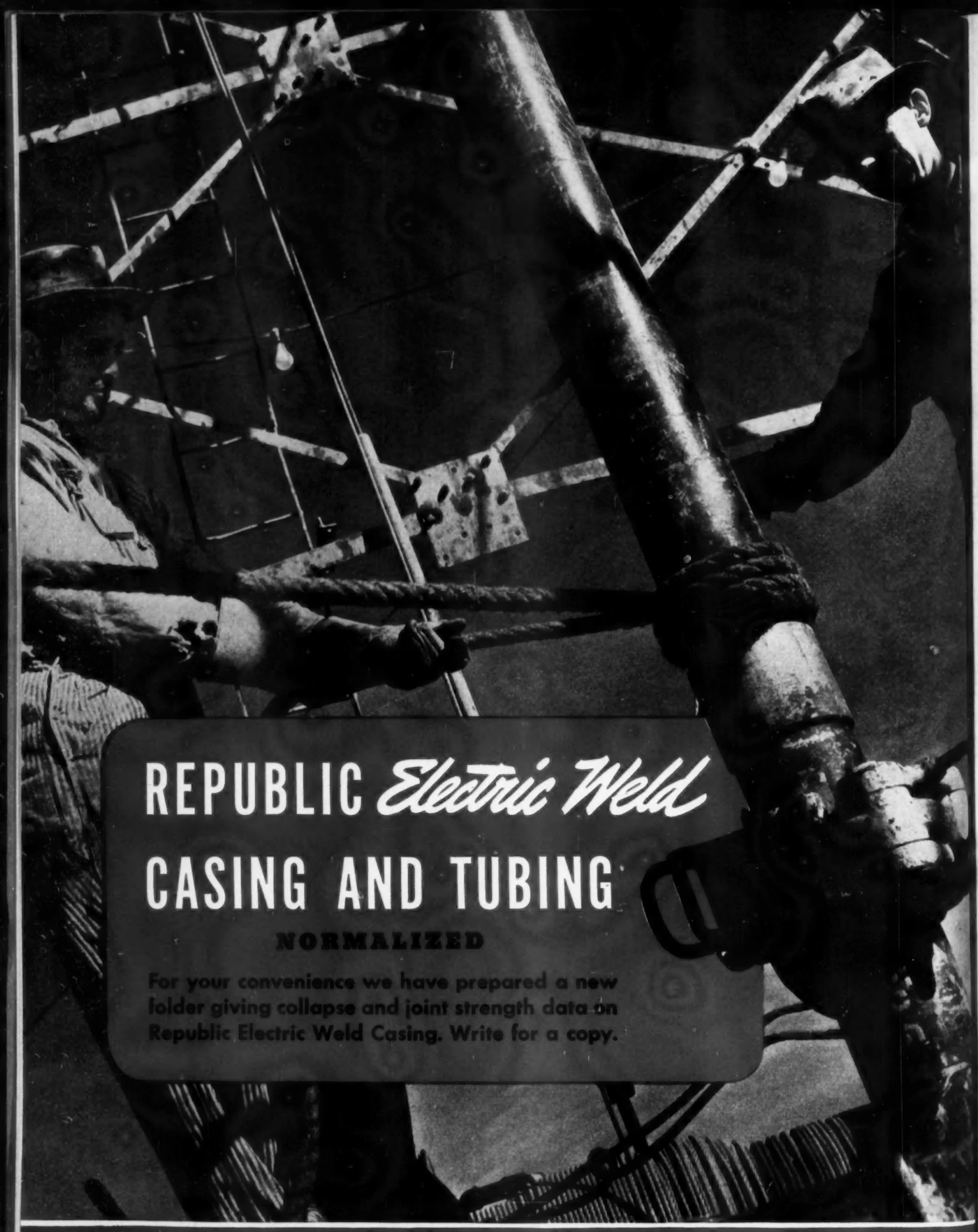

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THE OIL WEEKLY

SEPTEMBER 9, 1940

VOLUME 99 NUMBER 1

The Week's Panorama

CONTINUED brisk business has been reflected in freight car loadings, which are at the highest levels of 1940 and 10 percent above a year ago.

• • • Steel operations, at more than 91 percent of capacity before the Labor Day holiday, were near the 1939 high of 94.4 percent, reached in late November. . . . Activity is expected to continue indefinitely near capacity. But present prices will be maintained at least until the end of this year.

• • • About a million more workers were employed in July, 1940, than in July, 1939, in non-agricultural industries, the total having increased to 35,600,000 the Department of Labor reported. The defense program has added jobs in aircraft plants, shipbuilding, engine manufacture, machine tool making, explosives manufacturing, and other lines. And industries that have been stimulated by government or war orders have included iron and steel, woolen and worsted goods, shoes, men's clothing, and cotton goods.

• • • Consumption of gas continues to grow. Domestic gas customers now total about 2½ percent more than a year ago. Sales of gas ranges for the first six months of 1940 were 13.3 percent greater than in 1939. Shipments of gas water heaters, similarly, were up 12.9 percent. Shipments of gas boilers and gas furnaces for central house-heating units were up 33.9 percent, as compared with gains of 25.6 percent for shipments of domestic oil burners and 37.8 percent for shipments of residential mechanical stokers.

• • • Asphalt consumption constitutes about 2 percent of the total demand for petroleum. That product was in 8 percent greater demand in 1939 than in 1938, despite smaller exports.

• • • Although used primarily for paving roads, highways and streets, and for roofing, asphalt also is employed for numerous other purposes, including waterproofing, blending with rubber, briquetting, coating pipes, and manufacture of moulding compounds, paints, enamels, japans, lacquers, and other products. Highway construction absorbed about 60 percent of all asphalt sold in 1939, and roofing manufacture 26 percent.

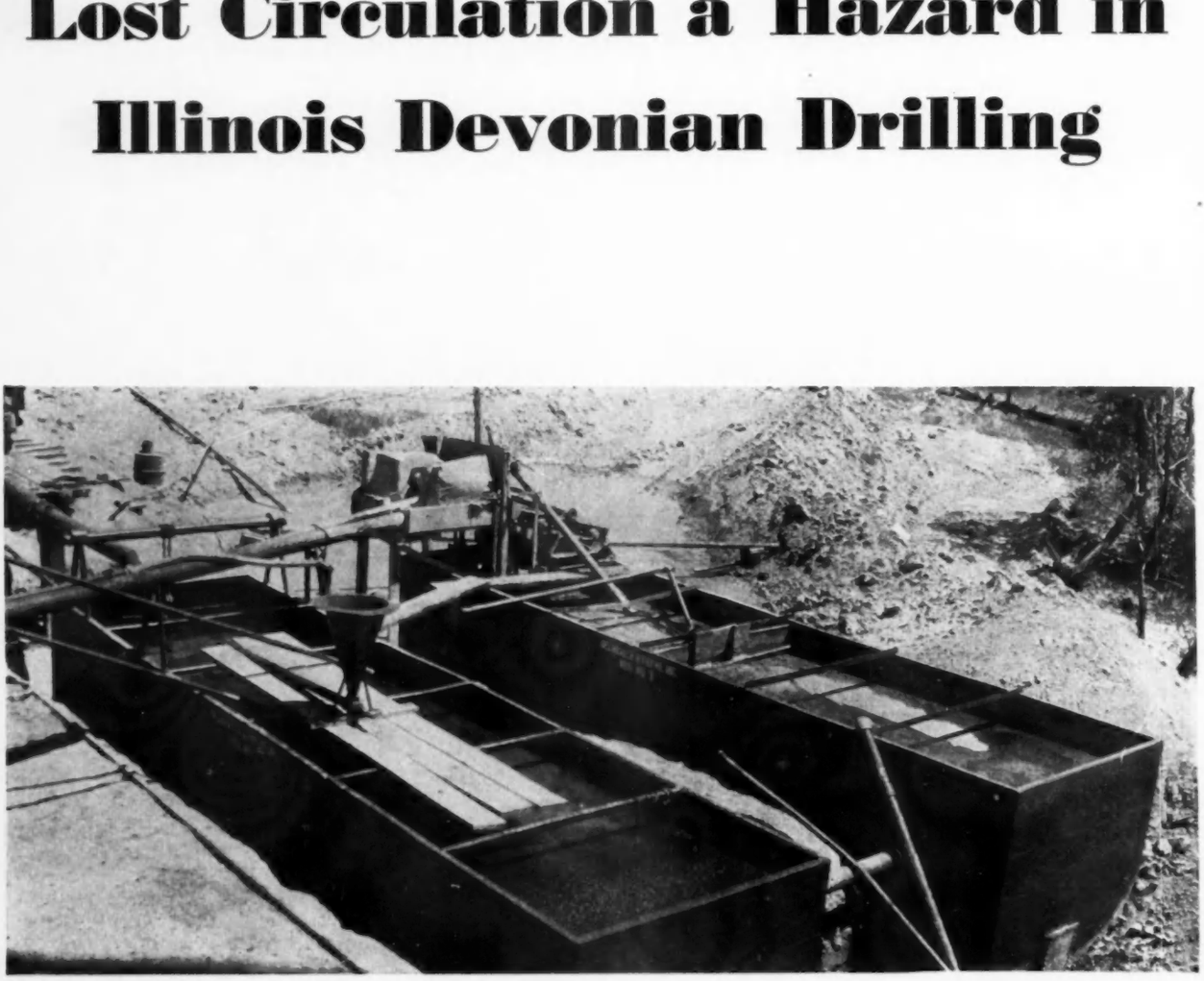
• • • Prices of carbon black has improved substantially since the beginning of this year, with domestic demand up and with stocks reduced to more wieldy proportions. But the market outlook for that product has become less favorable because of the curtailment of exports to Europe. In 1939, a little over one-third of all carbon black sales consisted of shipments abroad, and the bulk of the exports went to Europe. Of the 560,533,000 pounds sold during the year, 203,828,000 went to other countries, including 66,214,827 to the United Kingdom, 29,390,562 to France, 19,660,805 to Germany. All the European countries that are now ruled out as markets because of the war took 72,409,000 pounds in 1939, those nations having included Germany, France, Belgium, Holland, Italy, Norway, Poland, Danzig and Sweden.

• • • The petroleum industry of the United States is potentially also the nation's crude rubber industry and its explosives-manufacturing industry. Vast petroleum resources will make it possible for the industry to supply any needs of fuel for transportation on land, air and sea; to produce billions of pounds of explosives, and to make the country more than self-sustaining in synthetic rubber. The industry already has begun commercial production of toluene, basic ingredient of TNT, and several synthetic rubbers.

• • • All the petroleum produced in the world up to now would not fill a cubic-mile hole in the ground. And such a volume is believed insignificant compared with the amount nature must have provided from the remains of sea life through the ages. . . . Furthermore, the belief has been advanced that petroleum still is being formed in the earth more rapidly than it is being consumed, as oceans, lakes and rivers abound with fish and mollusks closely resembling those found in petroleum-bearing formations. Diatoms, microscopic creatures, taken alive from the ocean, yield 2 percent of oil by ether extraction.

• • • Sales of liquefied petroleum gases (propane, butane, and pentane) in 1939 were 35 percent greater than in 1938 and nearly 6 times as great as in 1933. About 40 percent of the 1939 sales consisted of bottled gas, delivered in cylinders and drums to farmers, suburbanites, and other domestic users outside the cities and towns. The second largest use was industrial consumption and the third ranking use was as motor fuel for internal combustion engines, principally in the West. Total sales in 1939 amounted to 225,150,000 gallons, equivalent to about 5,000,000 barrels.

Lost Circulation a Hazard in Illinois Devonian Drilling



Steel mud tanks in use on shore of Lake Centralia instead of earthen pits, so that mud can be maintained at desired consistency without contamination from earth.

THE "hope that springs eternal in the breast of the contractor" who is drilling in Illinois is that his mud will withstand the drain placed upon it when the tools enter the tricky formation below the McClosky. For it is in the Warsaw and Osage limestones, found between 2450 feet and 2900 feet in the Salem-Lake Centralia area, that an open and extremely porous zone is encountered that frequently absorbs the drilling mud as rapidly as the slush pumps can force it through the drill pipe, and which is so permeable that the contractor's old standby remedy of cotton seed hulls disappear by the ton. The driller can let the weight down on the bit until the bails of the elevators rattle against the swivel, and turn the table at any speed he desires, sit on the lazy bench and apparently go to sleep until the log of the well indicates that he is about to drill into this zone of "grand larceny" that thieves the circulation in large quantities, but he is immediately awake and stands at the controls with his fingers crossed when the returns begin to diminish in quantity. Then it is time for all hands to get busy, and get busy quickly.

For ordinary drilling to the shallower productive formations, such as the Benoist, the Aux Vases, the McClosky and intermediate zones, the Illinois contractor has little to worry about when it comes to drilling mud. Experience has taught him that if he maintains a weight of around 9½ pounds to the gallon, and a viscosity of between 38 and 40, the circulation will take care of itself and any oil formation penetrated will be sealed off adequately without contamination or loss of mud.

The type of pits are somewhat alike on any well drilling in this area, and consist of two parallel trenches excavated by a bull-dozer and a reserve pit nearby in which the cuttings are occasionally jetted. For surface drilling, the type of formation penetrated during the first few hundred feet will supply a mud of sufficient wall sealing and plastering ability to drill at any speed consistent with conditions encountered above the Benoist formation. The contractor may mix a small quantity of commercial clays to his mud, and occasionally it is necessary to remove some of the mud if it becomes too high in viscosity. This is done with trucks equipped with small rotary

pumps which suck the fluid from the pits and haul it to points of disposal away from the well, but as none of the formations carry extremely high pressures additives to increase the weight are not required.

The chief difficulty when drilling below 2400 feet at Salem, and deeper as locations are made to the east, is that when the weight of the mud exceeds 9½ pounds per gallon, the column weight plus the pump pressure at the ports of the bits will overcome the formation tension and result in the loss of mud in the permeable formation being penetrated. Therefore, the objective to be attained is to hold the viscosity at such a point that it will be most effective in plastering the walls of the hole, yet remain light enough in weight that it will not be lost by excessive column pressure. The drillers on the floor of the rigs are emphatic when speaking of mud conditions, and say that a mud of high weight will invariably be lost when the highly permeable zone is encountered. And they also state just as emphatically that if the mud has a viscosity higher than 40 the flow will be retarded which will result in the same difficulty.

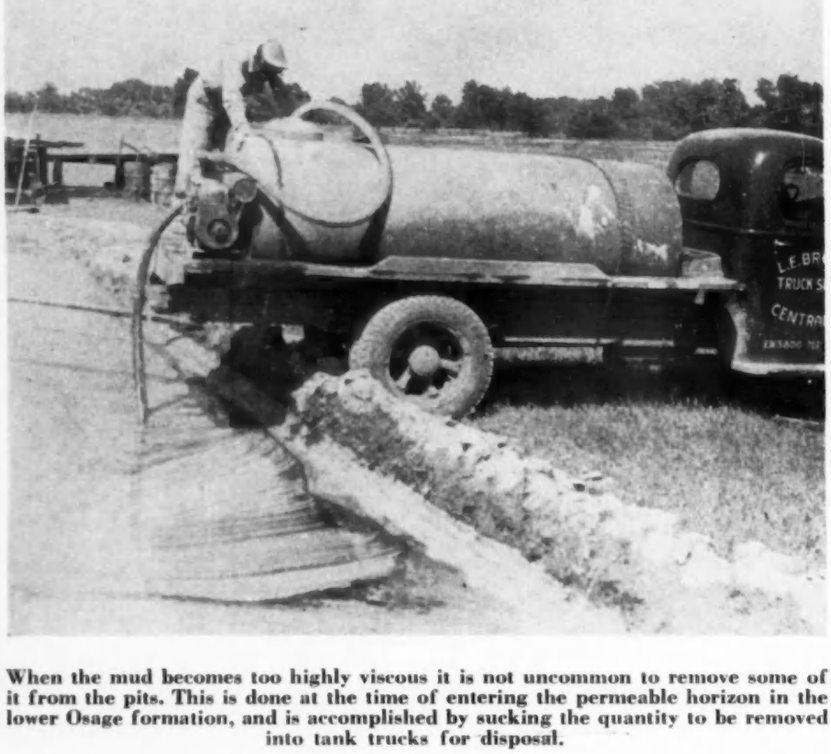
There are locations in Salem that have been drilled to the Devonian without any difficulty whatsoever, but the contractor can never tell which hole will be affected most by the permeable Osage. When rigging up, a mud-mixing apparatus is always set at or near the circulation pits, and in most instances a few bags of bentonitic clays are piled on a platform and covered with a tarpaulin ready for instant use. If the driller is lucky enough to make the hole below 2900 feet without difficulty, he is an exception to the rule. And he is certain to have a few bags of cotton seed hulls ready for use as the returns and log tell him that he is about to enter the zone of lost circulation.

If, when the bit enters this zone, the condition of the mud has been checked and the viscosity brought to around 38, and the weight does not exceed 9½ pounds, and the circulation begins to disappear the coarse additives are dumped into the pit at the pump suction foot valve. Frequently the circulation pits are pumped almost dry yet the circulation will, for some unaccountable reason, begin to flow back without having to shut down. But, if the available mud is pumped down the drill pipe and nothing comes to the surface, after cottonseed hulls, corn stalks and what have you have been mixed, then it is time to raise the pipe from the bottom and start thinking of something else.

Squeeze Cementing

In many wells, the zone of lost circulation has been sealed effectively by squeezing cement into the permeable formation, and have been completed without any further difficulty. But there have been wells drilled and treated with a cement squeeze job, only to have the mud disappear again after drilling ahead only a few feet. Lime slurry has been employed for squeezing

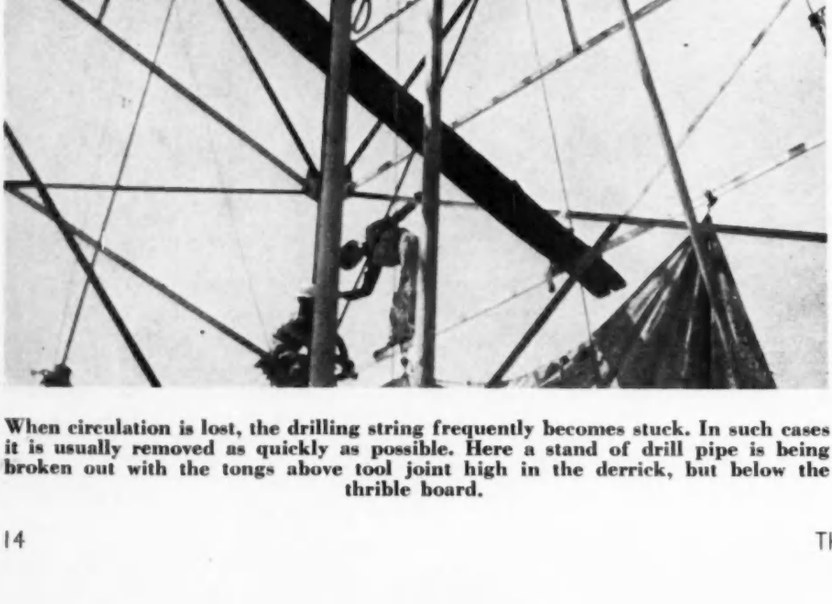
Man at the shale shaker is scraping cottonseed hulls from the screen while mud is being reconditioned to restore lost drilling circulation.



When the mud becomes too highly viscous it is not uncommon to remove some of it from the pits. This is done at the time of entering the permeable horizon in the lower Osage formation, and is accomplished by sucking the quantity to be removed into tank trucks for disposal.

the formation instead of cement with excellent results, but neither lime or cement will plug the permeable strata below the bottom of the hole at the time the squeeze is made.

The two major cementing concerns in Illinois have each developed an additive for drilling muds and for use in squeeze jobs which have been successful in closing the pores of the permeable formation. One additive is composed of flakes of mica, and the other additive consists of cellophane flakes, sometimes crinkled, and varying in size from that of a dime to larger squares, frequently as large as 4 inches. Either additive is mixed with the mud, if the circulation is used to seal the formation at the suction of the mud pump, in varying percentages, but seldom more than 3 or 4 percent of the quantity picked up by the pump. The larger particles of additive, when reaching the permeable formation, enter the openings that have been stealing the mud and simply seal them off by mechanical action. When these additives, either cottonseed hulls, cellophane flakes or mica have been put into the suction side of the mud pit, they are left in the circulating fluid until the base of the Osage has been drilled. If circulation is restored, the only disadvantage is in saving samples of cuttings for geological inspection in the laboratories, as the additives and particles of rock are mixed indiscriminately and are sometimes difficult to separate.



When circulation is lost, the drilling string frequently becomes stuck. In such cases it is usually removed as quickly as possible. Here a stand of drill pipe is being broken out with the tongs above tool joint high in the derrick, but below the thrible board.

Pipe May Stick

It is not infrequent when the circulation has been lost for the string of drill pipe to become stuck in the hole, particularly if the tool joints have been built up and used again without smoothing down the metal applied, due to caving and sloughing of some of the formation jamming down the hole. If the string of pipe becomes lodged in the hole, it is difficult to restore circulation and loosen up the tools in this manner. Sometimes it is necessary to pump acid down the drill stem, preceded by a slug of oil, and followed with oil after perhaps 1000 gallons have been used. But, most drillers do not hesitate after circulation has been lost to come out of the hole as quickly as the stands can be broken down, so that a fresh batch of mud can be prepared before running in again.

When making a batch of mud to pump down the hole after coming out with the string of drill pipe, the viscosity is checked again and yet again, the mud is weighed carefully, and the additives put into the circulation pit, or perhaps a steel tank, if that type of equipment is used, and the entire mass jetted until the mass of mud has the same consistency, weight and viscosity. While the tools are being run back into the hole, the mud is kept agitated until the very moment that the kelly is made up and circulation begins to be pumped down the pipe. To increase the viscosity without increasing the weight to a material extent, small quantities of lime are added with the bentonitic clays which in many instances are found to be effective

in holding up the column of mud without the circulation being lost in the permeable lower Osage.

Cementing Problems

Because of the thieving Warsaw and Osage formations, wells drilled to the Devonian lime in Illinois also have cementing problems. Care and special measures must be taken to prevent these highly permeable zones from absorbing large quantities of cement.

Several different types of additives are used in conjunction with the cement to overcome thieving of the Warsaw and Osage limestones, including cellophane flakes of varying sizes, flakes of mica, hydrated lime and bentonitic clays.

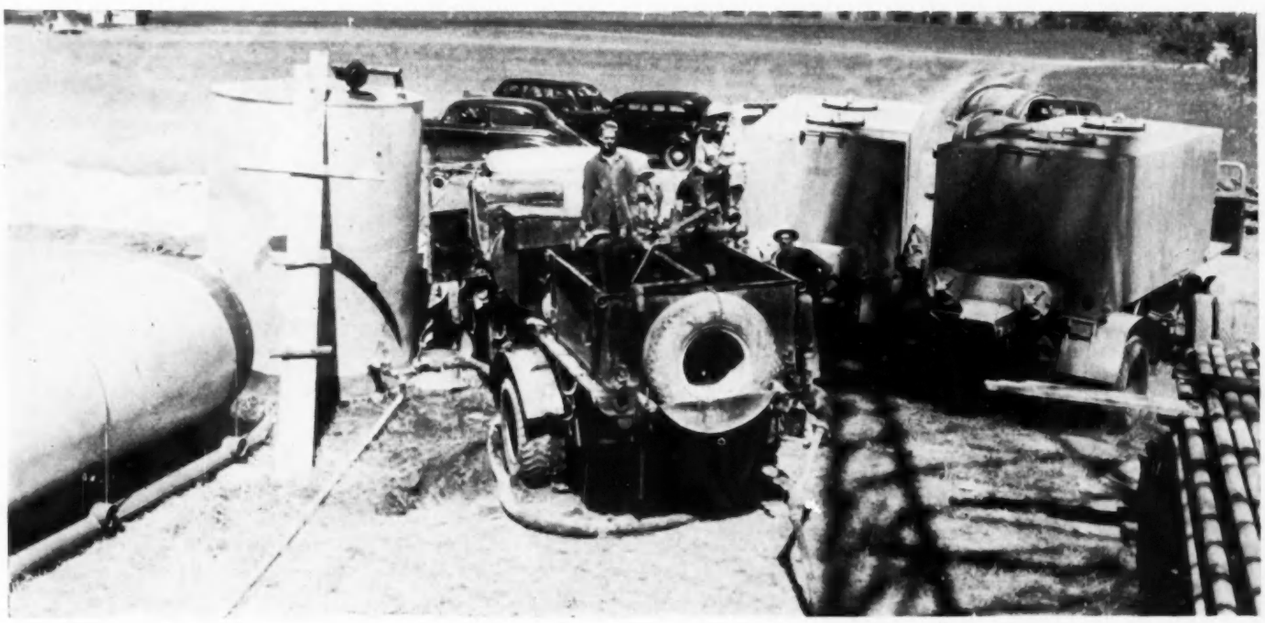
Preparatory to running casing in a Devonian test, a check is usually made of the condition of the wall of the hole through the Warsaw and Osage zones. This is done by circulating mud for half an hour. If circulation is established and continues uninterrupted during the 30-minute test period, the drill pipe is brought out of the hole as quickly as possible. Sometimes this is done as rapidly as 45 minutes. Speed is essential at this point so no lost time will occur between conditioning of the walls and the landing of the casing string. Mud is pumped into the casing at frequent intervals as it is run into the hole, so both the inside and outside of the pipe will have a balanced static head of fluid.

If there are indications that the permeable zones have not been filled completely with mud and sealing additives, the first batch of cement usually consists of ordinary oil well material. Sufficient quantity of this type cement is pumped into the hole to raise the column to the height of the thief horizon. At this time, quick set cement is frequently injected so the shoe and several joints above will be surrounded with a slurry that will harden quickly. When cement shows signs of being thiefed, the casing string is cleared with mud, and immediately connections are made to a bradenhead that will permit the pumping of additive containing cement down the annular space between the casing and the wall of the hole.

Frequently, this method successfully seals the void behind the pipe without additional difficulties. But if the job is not successful, a temperature survey is made, ordinarily within 12 hours, to determine the point or points where the cement has not been placed. The temperature gradient is shown by a chart, which is inscribed by virtue of the thermocouples used and only indicates the actual temperature in the various adjacent beds and cement. The different formations vary in insulating effect and some of the heat is dissipated away from the pipe. By checking these beds against the reading obtained, it is not difficult to determine at which point or points the cement has not been placed. After the readings have been interpreted, if voids are found to exist, the casing is gun perforated so a squeeze cement job may be made.

Another type of mechanical mixing of cement and additives, recently introduced in Illinois, involves the use of a specially designed truck having proportioning devices and pumps that take care of the amount of cement, the quantity of water required for a definite weight slurry, and the percentage of additives. This type uses cement handled in the conventional paper bag. Operations at the well are the same as when other methods of cementing are used.

The objective to be attained with this type of cementing is to pump the cement down the casing and flow it upwards to the surface without losing it in the porous zones. Bentonitic clays and cellophane flakes are usually introduced mechanically into the cement hopper. The cellophane flakes, which are crimped and crinkled from their ordinary flat shape, are for the purpose of blocking pore spaces in the thief formations to prevent loss of cement.



Hookup for cementing a well in the Illinois Basin with bulk cement. This cement, completely unsacked, is brought to the well location in water-proof tanks mounted on trailers, two of which are shown in the right hand background of photograph. Cement is dumped from tanks direct into hopper. Upright tank to left contains water that will be mixed with slurry.

Favorable Business Situation Encourages Drilling

DRILLING has been tapering off slightly since hitting the year's peak in June, whereas July and August sometimes are about equally as active as June. Nevertheless, field work is comparatively vigorous, being the most extensive for this season of the year since 1937, most active year in the history of the industry with exception of 1920.

In August, 1940, well completions in the United States exceeded those of August in 1939, 1938, and 1936, although each of those three years was above average in volume of drilling.

On the average, 86.1 wells were completed daily in August, 1940, indicating an increase of 9.4 percent over the field work in August, 1939.

The daily average completions for August in recent years have been as indicated herewith:

August of:	Wells Completed Daily
1933	34.8
1934	57.5
1935	69.3
1936	78.5
1937	98.4
1938	77.0
1939	78.8
1940	86.1

The 86.1 completions a day for August, 1940, indicated a 2 percent decrease in development from proportions in July, when the average was 87.7 daily.

However, the July to August decline was not significant, as it was very small and as August activity commonly fluctuates a little either up or down from the July level. There were declines in August also in 1939 and 1937, although increases occurred in 1938, 1936, and 1935.

This Is Active Year

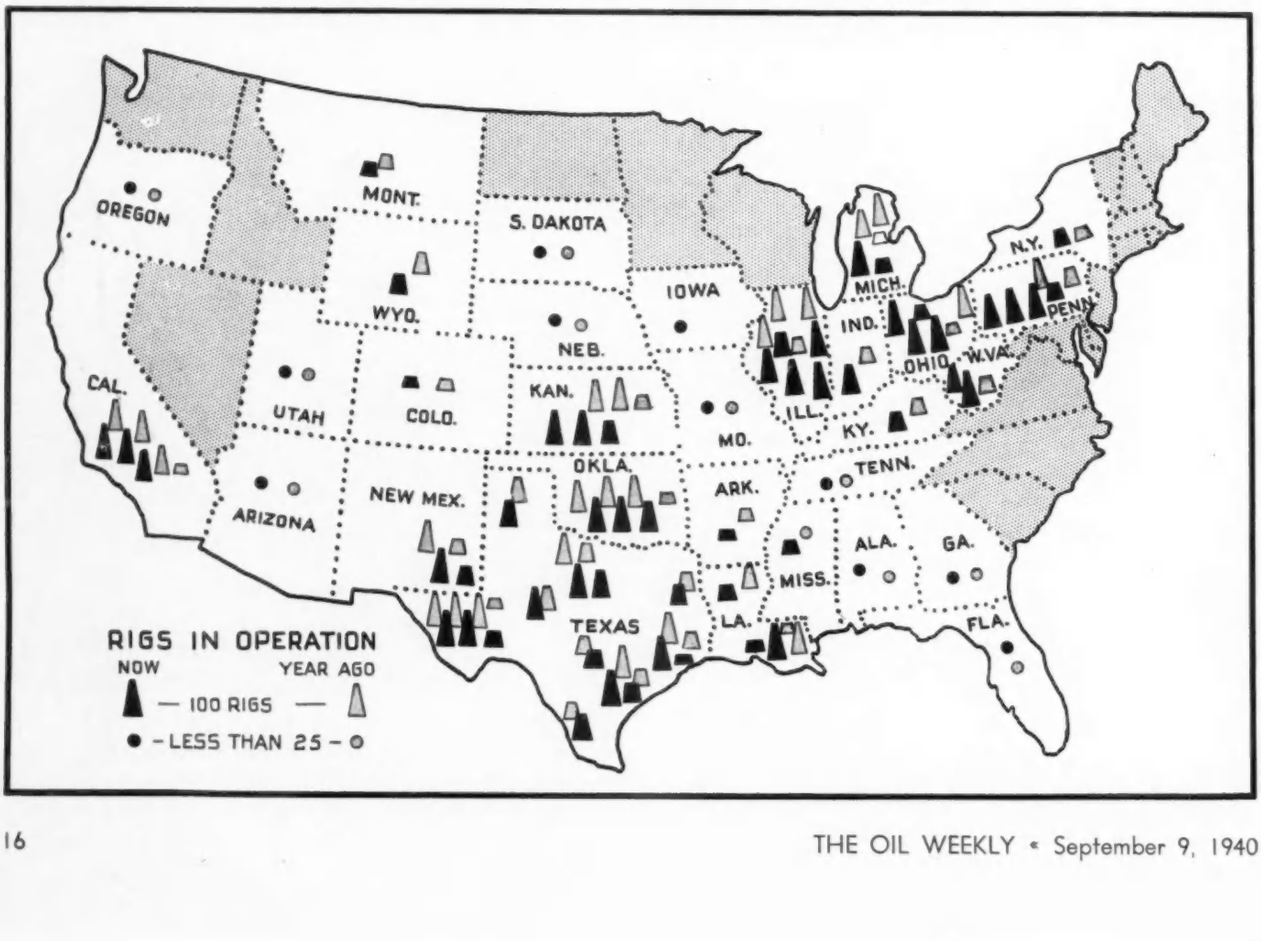
This year is more than fulfilling early expectations regarding drilling activity. It was anticipated as the year began that 5 to 10 percent more wells would be drilled in 1940 than in 1939. But the increase actually has been nearly 20 percent, and this year's record has closely approximated that of the extraordinary year 1937.

In the first 8 months of 1940, there were 21,054 well completions in the United States. That number exceeded by 18.9 percent the total of 17,702 for the corresponding months of last year. It was only 3.4 percent short of the number of completions in the first 8 months of 1937.

Cumulative completions in the

Drilling Rigs in Operation Now as Compared with Year Ago, by Districts

This map-chart is based on detailed figures shown in an accompanying table.



first 8 months of recent years have been as herewith indicated:

First 8 Months of:	Total Wells Completed
1933	6,745
1934	12,305
1935	14,843
1936	17,677
1937	21,784
1938	18,776
1939	17,702
1940	21,054

Although this year's record up to now has nearly equaled that for the like period of 1937, the latter year was exceptionally active in the closing months, and similar, extraordinary activity is not indicated for the remaining months of 1940. Consequently, it is likely that completions for all of this year will be substantially under those of 1937, although perhaps more numerous than in any other year except 1937 and 1920.

In recent years, drilling has not pursued any uniform trend in the closing months. Apparently, economic conditions have definitely overshadowed the weather in controlling field development; for while it might be expected that activity would slow down in the late fall and early winter, drilling was maintained around the summer levels in 1936 and 1938 and was expanded in late 1939 under the influence of the war-time boom, whereas it had been curtailed in late 1937 because of the business recession of that time.

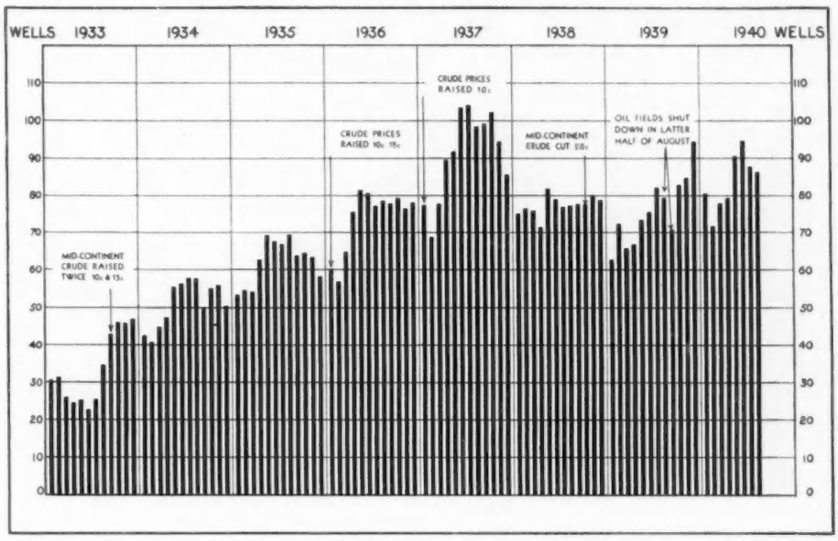
General business conditions naturally have affected the markets for refined oils and for crude oil, and the oil industry's market conditions in turn have influenced drilling.

The trend of drilling in the closing months of 1940 may be expected to depend, similarly, on general business conditions and more directly on market conditions within the petroleum industry. And those influences quite likely will promote maintenance of field work around present proportions if not upon an increased scale. For the national defense program already has stimulated business in most lines, and further gains in employment, consumer purchasing power, and demand for petroleum products, as well as other goods, are in prospect. Consequently, continued improvement of the inventory situation and better market conditions in the oil industry are promised, and favorable markets would encourage operators to put money into more wells.

Aside from the general situation, the outlook for the oil industry's markets also has been improved by the natural decline of production in Illinois, which has left no serious threat of overproduction upon the horizon. With Illinois on the decline, operators will have better assurance of obtaining a fair price for the oil from newly completed wells.

Meanwhile, another circumstance has assumed importance in the drilling situation; namely, the slowing down of oil field discoveries. Following several years in which the industry was consistent-

Average Daily Well Completions in U. S. by Months



Few Rigs Stacked in August, but Remaining Active Operations 12.8 Percent Above Year Ago

STATE OR DISTRICT	TOTAL RIGS IN OPERATION Drilling, Rigs Up, Shut Down: Year Ago (Sept. 1, 1939)	Month Ago (Aug. 1, 1940)	Now (Sept. 1, 1940)	Percent Change From Year Ago	DETAILS OF SEPTEMBER 1, 1940 FIELD ACTIVITY: Rigs in Operation: Drilling	Rigs Up	Shut Down	Prelim. Activity: Derricks	Locations	Total Operations
Alabama	4	4	9	+ 125.0	5	1	3	...	...	9
Arizona	8	7	7	— 12.5	1	...	6	...	1	8
Arkansas	30	14	23	— 22.3	16	2	5	2	...	25
California	331	283	278	— 16.0	197	61	20	...	54	332
Colorado	28	29	30	+ 7.1	8	1	21	...	2	32
Florida	3	...	3	...	...	...	3	...	...	3
Georgia	1	...	...	...	...	...	...	...	...	...
Illinois	350	410	485	+ 38.6	403	41	41	...	39	524
Indiana	65	96	89	+ 36.9	34	5	50	...	25	114
Iowa	...	3	3	...	1	...	2	...	...	3
Kansas	242	273	258	+ 6.6	212	29	17	9	8	275
Kentucky	69	46	62	— 10.1	31	...	31	...	...	62
Louisiana	207	173	171	— 17.4	141	19	11	11	46	228
North Louisiana	73	44	44	— 39.7	29	8	7	3	3	50
South Louisiana	134	129	127	— 5.2	112	11	4	8	43	178
Michigan	226	146	131	— 42.0	80	19	32	11	15	157
Mississippi	9	34	34	+ 277.8	24	4	6	2	2	38
Missouri	19	16	19	...	13	1	5	...	...	19
Montana	45	53	47	+ 4.4	24	4	19	...	2	49
Nebraska	2	22	24	+1100.0	13	4	7	...	...	24
New Mexico	154	122	121	— 21.4	83	4	34	1	21	143
New York	55	69	62	+ 12.7	45	6	11	4	11	77
Ohio	113	310	347	+ 207.3	232	59	56	23	58	428
Oklahoma	332	318	290	— 12.7	210	30	50	28	16	334
Oregon	1	1	1	...	1	...	...	...	...	1
Pennsylvania	122	420	358	+ 193.4	257	37	64	25	61	444
South Dakota	1	1	1	...	...	...	1	...	...	1
Tennessee	11	9	9	— 18.2	5	1	3	2	2	13
Texas	1,156	1,102	1,058	— 8.5	828	71	159	65	404	1,527
East Texas Field	15	9	10	— 33.3	7	1	2	5	6	21
East Texas Border Co.'s	11	13	13	+ 18.2	8	3	2	2	...	15
Rest of East Texas	36	35	39	+ 8.4	26	1	12	7	5	51
North Texas	170	185	163	— 4.1	116	13	34	9	57	229
South Texas	260	270	281	+ 8.1	228	20	33	18	125	424
Corpus Christi Area	142	143	151	+ 6.3	133	8	10	10	69	230
Laredo Area	60	76	76	+ 26.7	59	6	11	5	36	117
San Antonio Area	58	51	54	— 6.9	36	6	12	3	20	77
Texas Gulf Coast	147	120	124	— 15.6	115	6	3	14	55	193
Texas Panhandle	101	112	80	— 20.8	67	9	4	...	29	109
West Texas	332	248	246	— 25.9	205	10	31	249	109	364
West Central Texas	84	110	102	+ 21.4	56	8	38	1	18	121
Utah	3	8	6	+ 100.0	2	1	3	...	...	6
West Virginia	67	197	202	+ 201.8	145	21	36	14	35	251
Wyoming	64	69	66	+ 3.1	32	6	28	...	8	74
Total United States	3,718	4,235	4,194	+ 12.8	3,043	427	724	197	810	5,201

ly finding more oil than it was taking from the ground, fortunes have changed, and so far this year, discoveries have not compensated for withdrawals from the established reserves. The nation's available crude reserve consequently has been reduced since the beginning of this year by possibly one half billion barrels.

Lagging of discoveries has hastened the decline of production in Illinois, and California has not had a major oil field discovery for a year. Nearly all the other producing states, too, have unimpressive records in discoveries for 1940.

This situation regarding crude reserves naturally is beginning to have a bolstering, if not stimulating, effect on drilling. Requirements for petroleum continue undiminished, in record-breaking proportions, and the industry cannot long afford to dip deeper and deeper into its reserve, because of failing to find as much new oil as it takes from the wells.

For individual companies the diminution of reserves represents a highly important matter, and some operators doubtless are being made relatively less conservative in regard to both wildcatting and field development, in view of the reduced success in proving up new reserves.

If the above discussed circumstances actually should result in a continuation of drilling during September, October, November, and December at about the same level as in August, total completions for 1940 would be approximately 32,000, including the water-intake wells in Pennsylvania.

That would be within 3 percent of the 33,112 wells completed in the United States in 1937, and would compare with 27,938 in 1938 and with 27,574 in 1939.

If completions for this year should total about 32,000 wells, an increase of 16 percent over the 27,574 of last year would be indicated. That percentage figure would compare with the actual gain of 18.9 percent shown for the first 8 months of the year.

That development will continue around August levels at least for some weeks is indicated by the fact early September has brought a slight increase in the average daily completions and by the accompanying statistics on rigs in operation at the beginning of September. Rigs in use were practically the same in number on September 1 as on August 1, and the present total is 13 percent greater than that for a year ago.

Although completions for the United States as a whole were about the same in August as in July, the daily average having been 86.1 compared with 87.7, there were some substantial changes in individual districts. Illinois development declined materially, and there were considerable decreases in Michigan, South Louisiana, and the Corpus Christi district of South Texas. The declines in Illinois and Michigan reflected the continued scarcity of new discoveries, and that in the Corpus Christi area was due partly to the loss of export business. West Texas also had considerably fewer completions in August than in July. On the other hand, August was more active than July in Arkansas, California, and Indiana.

For the country as a whole, field work continued on September 1 at about the same level as on August 1, the regular monthly survey of this publication on active operations having shown that 4194 rigs were in use at the beginning of September, compared with 4235 a month previously.

Drilling Continues Brisk in Most Active August Since 1937

STATE OR DISTRICT	MONTHLY COMPLETIONS: Total			MONTHLY COMPLETIONS: Details for August, 1940[1]				CUMULATIVE COMPLETIONS: First 8 Months: Total			CUMULATIVE COMPLETIONS: First 8 Months: Details for 8 Months of 1940			
	Year Ago (Aug., 1939)[2]	Month Ago (July, 1940)[3]	Latest Data (Aug., 1940)[1]	Oil	Gas	Dry	Initial Oil Production	1939	1940	Percent Change	Oil	Gas	Dry	Initial Oil Production
Alabama	....	2	1	....	....	1	.....	.....	4	.....	.....	.....	4	.....
Arkansas	26	14	18	9	1	8	1,060	160	125	— 21.9	85	4	36	24,601
California[4]	102	106	113	102	1	10	109,910	728	764	+ 5.0	630	11	123	602,595
Colorado	....	1	1	....	....	1	.....	15	5	— 66.6	.....	.....	5	.....
Florida	....	1	....	....	....	....	.....	.....	1	.....	.....	.....	1	.....
Georgia	....	....	....	....	....	....	.....	1	....	.....	.....	.....	....	.....
Illinois	318	481	412	305	4	103	105,389	2,427	2,684	+ 10.6	2,233	18	433	1,719,865
Indiana	5	45	62	31	9	22	5,399	115	304	+ 164.3	142	41	121	18,499
Kansas	132	226	216	170	11	35	299,325	906	1,326	+ 46.4	1,024	41	261	1,561,314
Kentucky	55	47	41	18	1	22	1,588	422	224	— 46.9	99	5	120	5,496
Louisiana	90	176	155	115	6	34	26,883	678	1,135	+ 67.5	839	59	237	211,439
North Louisiana	22	51	61	41	5	15	4,985	225	400	+ 77.8	279	50	71	31,441
South Louisiana	68	125	94	74	1	19	21,898	453	735	+ 62.3	560	9	166	179,998
Michigan	112	120	101	38	5	58	4,783	935	834	— 10.8	433	28	373	80,976
Mississippi	1	25	15	6	....	9	2,856	7	129	+1743.0	65	1	63	38,009
Missouri	17	2	6	....	3	3	.....	26	13	— 50.0	.....	4	9	.....
Montana	12	26	14	9	1	4	914	86	118	+ 37.2	93	7	18	9,635
Nebraska	....	1	7	1	....	6	387	.....	8	.....	1	.....	7	387
New Mexico	48	60	52	42	....	10	13,032	398	470	+ 18.1	372	12	86	141,837
New York	[6]68	[6]111	[6]89	[6]87	2	....	256	[6]373	[6]703	+ 88.5	[6]688	7	8	2,687
Ohio	78	66	136	58	46	32	487	590	624	+ 5.8	291	187	146	2,726
Oklahoma	171	205	196	125	14	57	26,029	1,371	1,463	+ 6.7	813	110	540	211,074
Pennsylvania[5]	[6]221	[6]315	[6]401	[6]367	20	14	319	[6]1,522	[6]2,638	+ 73.4	[6]2,373	164	101	1,877
South Dakota	....	....	....	....	....	....	.....	.....	1	.....	.....	.....	1	.....
Tennessee	....	....	....	....	....	....	.....	.....	8	.....	3	1	4	833
Texas	707	975	903	648	35	220	331,331	6,510	6,997	+ 7.5	5,089	205	1,703	2,866,363
East Texas Field	23	22	27	26	....	1	28,082	333	193	— 42.0	183	.....	10	316,357
Rest of East Texas	26	22	26	9	5	12	1,339	207	176	— 15.0	73	35	68	23,603
North Texas	120	188	183	126	1	56	60,022	1,145	1,493	+ 30.4	1,013	9	471	566,832
South Texas	221	277	244	152	6	86	58,237	1,868	1,854	— 0.8	1,170	49	635	438,780
Corpus Christi Area	101	149	124	91	3	30	45,447	899	906	+ 0.8	652	21	233	334,859
Laredo Area	85	95	99	52	3	44	11,223	687	764	+ 11.2	453	28	283	96,979
San Antonio Area	35	33	21	9	....	12	1,567	282	184	— 34.8	65	.....	119	6,942
Texas Gulf Coast	91	109	102	80	5	17	24,341	948	883	— 6.9	700	19	164	179,041
Texas Panhandle	29	86	75	59	14	2	15,233	261	459	+ 75.9	378	66	15	113,004
West Texas	162	192	172	161	2	9	137,504	1,413	1,419	+ 0.4	1,318	10	91	1,166,799
West Central Texas	35	79	74	35	2	37	6,573	335	520	+ 55.2	254	17	249	61,947
Utah	....	1	....	....	....	....	.....	.....	2	.....	.....	1	1	.....
West Virginia	58	51	57	10	37	10	66	358	372	+ 3.9	82	225	65	601
Wyoming	15	13	17	13	....	4	21,284	74	102	+ 37.8	80	3	19	69,238
Total United States	2,236	3,070	3,013	2,154	196	663	951,298	17,702	21,054	+ 18.9	15,435	1,134	4,485	7,570,052

[1] Wells completed in the 5 weeks, or 35 days, ending August 31, 1940. [2] Wells completed in the 4 weeks, or 28 days, ending August 26, 1939. [3] Wells completed in the 5 weeks, or 35 days, ending July 27, 1940. [4] California completions except for August, 1940, revised in accordance with the American Petroleum Institute. [5] Bradford, Pennsylvania, completions except in August, 1940, revised in accordance with The Producers Monthly. [6] Includes water-intake wells.

Pictorial Story . . .

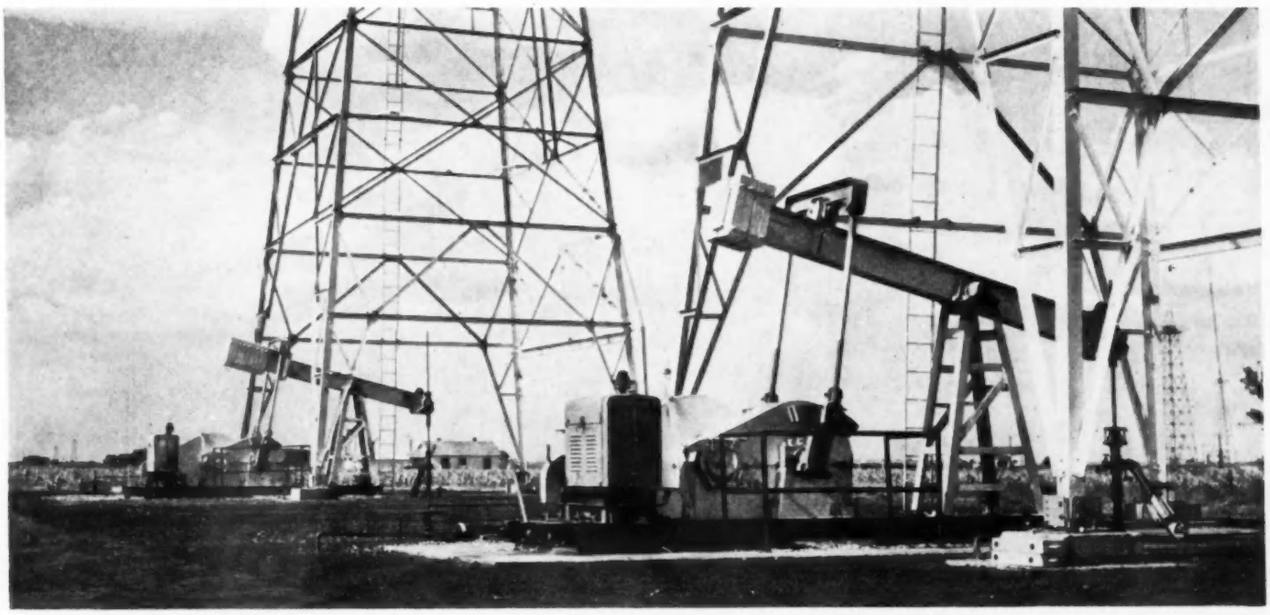
Modern Lease Progress

PRODUCTION efficiency is measured by many standards. Practices may stress economy, or barrels of production. In one area a problem vitally important in another field may be totally absent. In all a well-rounded producing program, consistent, and appreciative of local conditions, is logically a basis for a permanent stable department.

As change is a forerunner of progress in the petroleum industry as well as in any other, producing schemes are constantly being revamped to utilize new and improved methods, new and improved equipment. The stability of the producer's program must be sufficiently flexible to the extent that new methods may be applied and absorbed to the betterment of his department and his company.

In recognition of the constancy of change, Gulf Oil Corporation on Kansas properties is modernizing both methods and equipment as new ideas are tried and proven applicable to field conditions. The constructive program does not entail the discarding of usable equipment or applicable practices, but does include modernization of a constantly expanding production program. In such manner the firm absorbs new ideas to keep abreast of advancements.

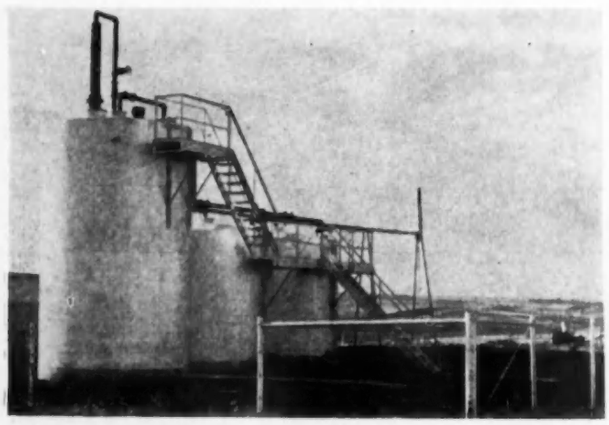
The producing field expressed pictorially comprises a short review of achievement in this instance. The corporation's leases are a contributing factor toward economy without sacrifice of adequate equipment and conservative policies. Constructive advancement has kept pace with new engineering applications. Problems have been overcome, or rendered less vital, through new means. Modern production demands equipment capable of sustaining the producing program with a minimum of daily or monthly operating cost and maintenance expense.

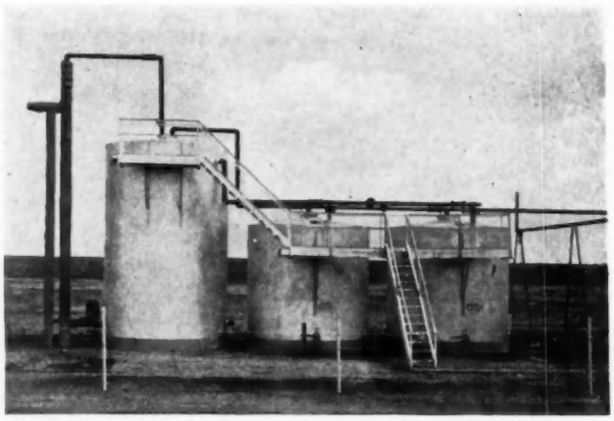


Good production engineering is expressed not only in well-designed equipment, but in the application of that equipment as well. At Bloomer, one of Kansas' outstanding pools, Gulf Oil Corporation's B. F. Stout 2, SE NE NE 6-18s-10w, produces from Kansas City-Lansing lime while its twin produces from Arbuckle lime. Pumping equipment is balanced to the individual load as well as the production allowable, is selected to do the particular job requirement and installed to do the work as long as the job is there to be done.

Somewhat apart from purely engineering advancement in present pumping equipment is the important question of portability. Not only is today's unit highly efficient, but it is so unitized and skid mounted that it can be quickly set up or moved. This function of design affords greater utility and flexibility of operation. ***(Continued next page)***

Many words would be required to describe in detail the setup at the firm's Jansen 1, another Bloomer field Arbuckle lime producer. The power is a 25 horsepower internal combustion engine, natural gas fueled. A wind-actuated water well supplies cooling water to the pumping engine and to the water-sealed wooden storage tanks in the background. One receiver and two stock tanks are Jansen lease equipment, each tank of 620 barrels capacity. Water keeps tanks tight, retards evaporation and loss of light vapors. Utility ladder is cornered in derrick.



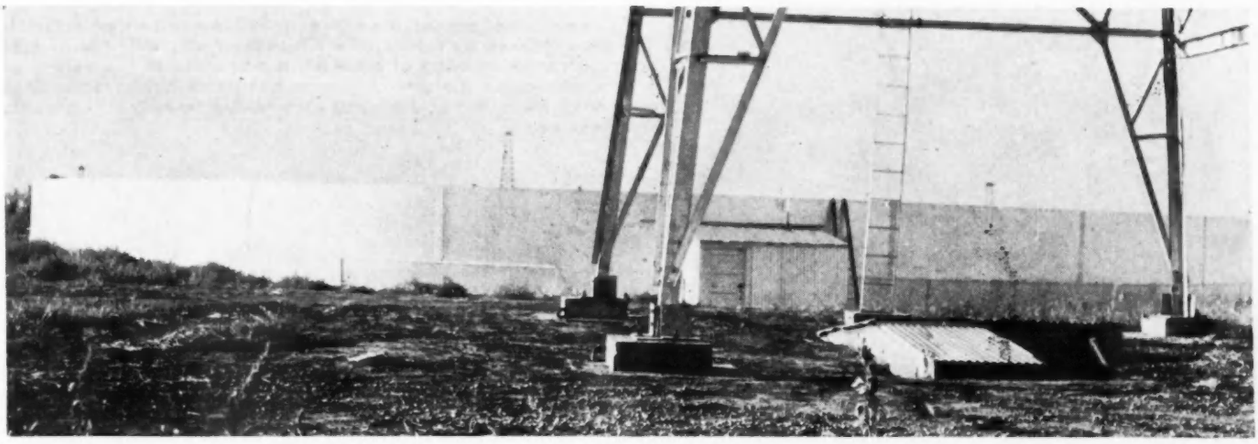


Production necessitates storage, and highly corrosive crudes make protection of storage facilities a matter of economic necessity rather than one of choice. At left is a new design in protected tank installation at Gulf Oil Corporation's Malir 1, Stoltenberg field, where Arbuckle lime is productive.

Production enters the 210-barrel receiver through a buried line. From the bottom of the receiver the production rises to near the top through a six-inch, non-corrosive, composition pipe. Around the six-inch piping, enclosing it except for escape vents near the bottom, is a piece of 10-inch pipe of the same composition material. Six and 10-inch pipes are flanged to the tank top, with the six-inch piping reduced to return light ends back into the tank.

Freshly released gas from corrosive crude is more potent as a metal destroyer than aged gas, and is still more potent if allowed to mix with air. The unit arrangement prevents agitation of tanked fluid, conserves light ends, reduces corrosion, acts to separate gas and oil in the unit rather than in the receiving tank, and eliminates freezing trouble in winter. Tanks are of welded construction.

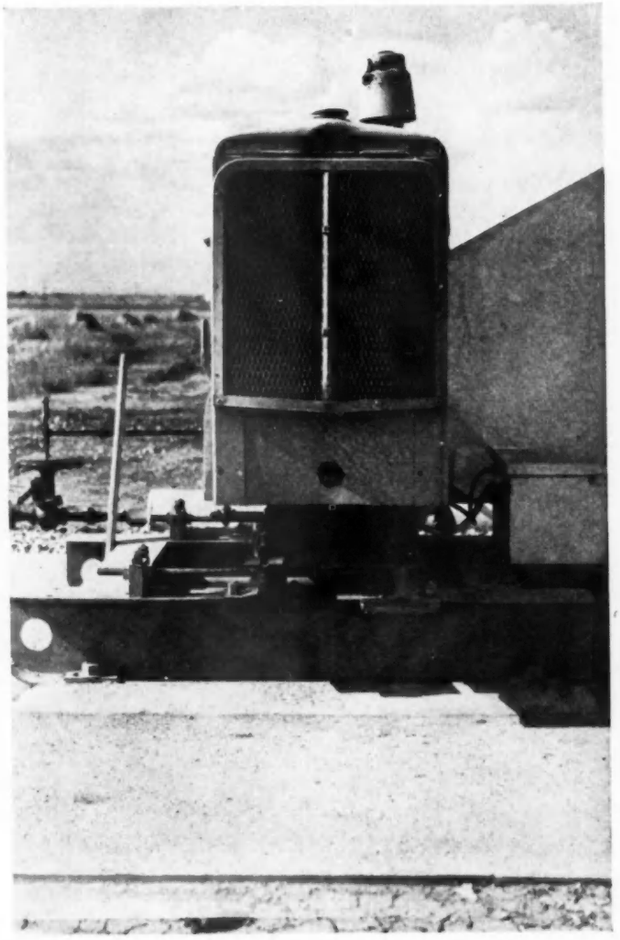
At right is a view of the former customary setup of tankage on such leases, with boot to left of receiver rather than enclosed. ***(Continued next page)***



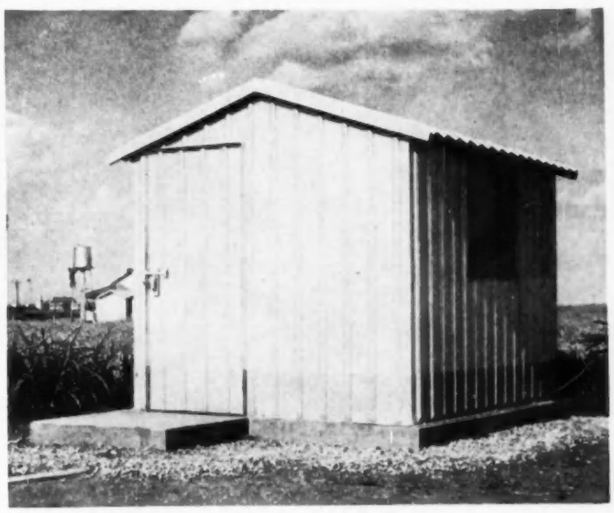
Water is a producer's burden, its disposal a problem. Although water may be indispensable as a force to move the oil through reservoirs, making possible commercial production in some fields, a water-drive irresistibly increases the produced water volume as the water table in the formation rises.

In Chase field of Kansas, Gulf Oil Corporation returns brine produced with crude to a storage tank through gravity flow lines. Above is a well that has been drilled to a sand proven barren of oil by tests. At the firm's Wickerham salt water disposal well the lower rings of a 55,000-barrel tank give storage for 17,800 barrels of salt water. Upon reaching a given level, brine flows into the well and into Basal sand underlying the Arbuckle lime. Controlling the water level in the salt water storage tank is a glass float to resist corrosive action of the fluid. Well takes 330 barrels per hour through cement lined pipe.

Installation is illustrative of the effort of the industry at large to eliminate any possibility of the polution of streams or fresh water sources by produced brines.



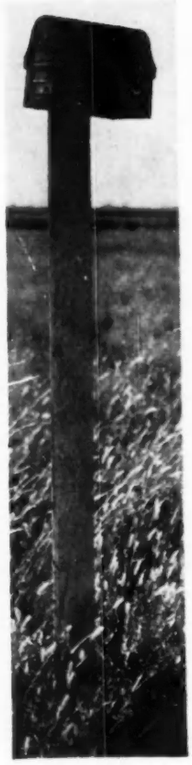
Lease gas is used for fuel in this 10-horsepower, internal combustion engine (left) driving pumping unit. Note particularly the manner of installation, adjustments, protected storage battery, foundation, reinforced base, safety guard for belt. Natural gas manifold and regulator are in the rear. In some instances where leases do not make sufficient gas for such operations, butane is being used by Gulf Oil Corporation.

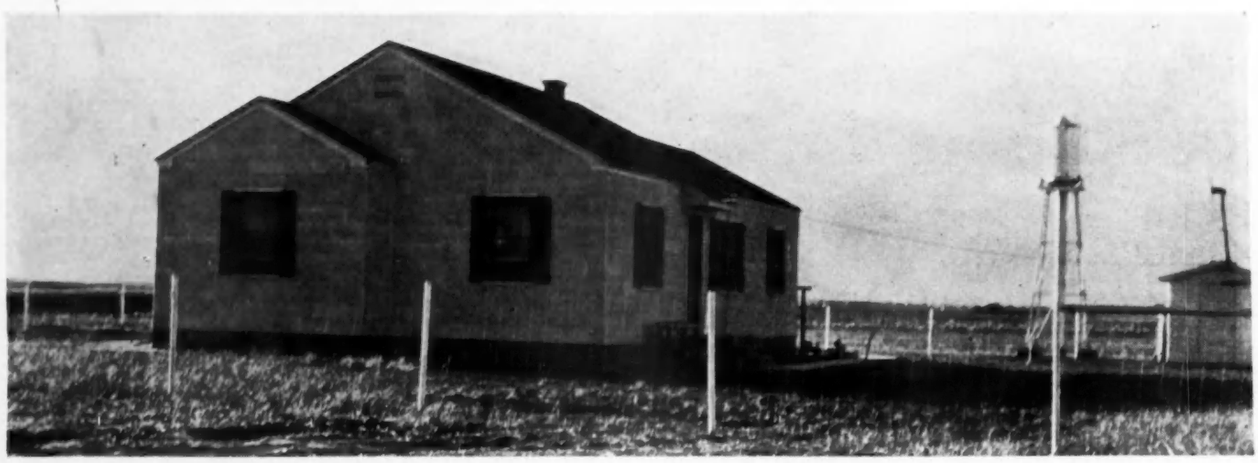


All-metal, lease utility house (above) holds stove, reports forms, minor tools, other requisites to general lease operation. A haven for the pumper or foreman in zero weather, it is the last outpost of the main office. ***(Continued next page)***

Treatment of produced crude as it is brought to the surface is accomplished by means of a lubricator (left) adjusted to feed the correct quantity of chemical in proportion to the volume of production of the well. Attachment to beam furnishes power to drive feeder set on foundation frame. Side container is chemical reserve.

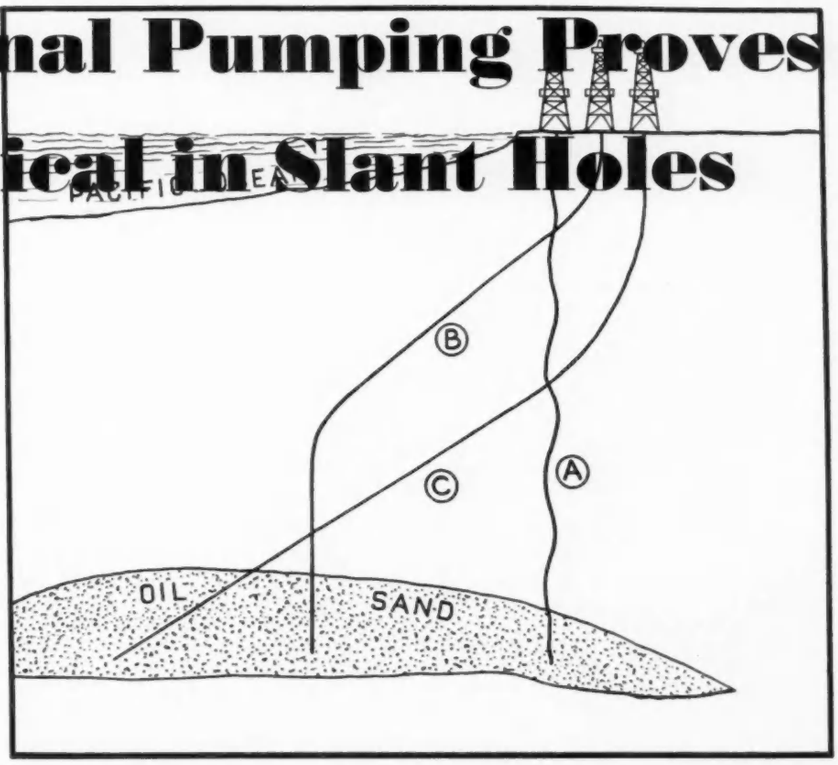
A small item, perhaps, but one that has saved many a working hour and many an unpleasant wait in wintertime. Just a lunch box (right) nailed to a post set where the pumper completes his round of lease producers. Instead of waiting for the foreman, possibly unavoidably detained on another property, reports are placed in the box, are picked up by the foreman when he arrives.





New lease houses on Gulf Oil Corporation property are a far cry from the weatherbeaten shacks that at one time were a part of the producing scheme. Instead of mere protection for the oil field employe and his family, and sometimes even this was questionable, this modern lease house is a home. Fireproof, composition shingles require no painting.

Conventional Pumping Proves Economical in Slant Holes



This schematic drawing gives some idea of developments at Huntington Beach. Well A is one of the original, hurriedly drilled "vertical" producers along the ocean front; Well B is one of the first deflected holes bottomed under the ocean; Well C is the ideally drilled slant hole, such as has been completed during the more recent development period. The course of Well A is slightly exaggerated, and sketch is not to scale.

DIRECTIONALLY drilled oil wells are being pumped at reasonable costs in the Huntington Beach, California, field. Many of these intentionally deflected holes drift more than 45 degrees from vertical, and extreme drift angles of more than 60 degrees have been attained in wells being pumped successfully with conventional rods and tubing.

The first town-lot development at Huntington Beach employed "straight hole" drilling to develop leases along the ocean front. Many of these wells soon stopped flowing and the field, as a whole, became a settled pumping area prior to 1930. The field was a prolific producer, but close spacing and near-capacity flow during the first few years sharply reduced the formation pressure and lowered the fluid level in town-lot wells.

Town-lot development during 1926 and 1927 indicated that at least half of that part of the structure lay under the Pacific ocean. The state claimed sovereignty over tide-land leases, but development of submerged lands was not considered at that time.

Two mystery wells completed in 1930 were deeper than other producers in the field, and also yielded more oil than was expected from wells in the town-lot area. Reports that a deeper oil zone had been opened were discounted, and the belief was general that the wells had been bottomed under the ocean.

The first deviated wells, acknowledged as such, were completed in 1932 and 1933. They came in with good initial yields, and in a short time more than 50 wells were completed in a section of the field known to have been largely depleted. Operators on old leases near the ocean front soon learned that by drifting wells sharply southward it was possible to bottom them out under the ocean and obtain a large flowing production. The net result of the discovery was a new wave of development, during which the field potential was doubled and redoubled. The steady stream of flowing producers that followed demonstrated the efficacy of directional drilling on that portion of the structure which had not been touched by vertical drilling.

The first wells completed in 1933 as slant holes were hurriedly drilled and followed a wandering course in reaching the untapped oil reserves under the ocean. They did not maintain a uniform deflection angle from vertical in attaining the desired horizontal drift, and many wells were "kicked" right or left, up or down in desperate attempts to reach heavy flowing production. These wells developed doglegs and sharp turns that are now regarded unnecessary in directional drilling. Several of the early completions attained their full horizontal drift well above the oil sand, and it was necessary to continue in a vertical course while drilling the bottom portion of the hole. This change from a 30- or 40-degree angle to vertical placed doglegs near bottom that have given trouble in pumping operations.

Wells Now Carefully Drilled

The more recent deflected holes have been scientifically drilled in an arc or drift that permits an easy pumping motion. The curve is gradually established and the hole slanted uniformly to bottom. Use of the "flat" hole through the oil sand gives the operator a much greater zone penetration than in straight holes. In a few wells almost twice the normal oil sand thickness has been opened.

The first diverted wells were drilled with angles of 15 to 25 degrees from vertical, but difficulty in holding a uniform drift resulted in numerous kinks and turns between the original point of deviation and bottom. Angles from vertical were increased rapidly with greater activity, and soon operators were slanting their wells as much as 50 or 60 degrees. Casing strings for shutting off water were cemented at angles as great as 60 degrees from vertical, while 45-degree angles were common. The horizonal drift in one well was so great that it developed edge water on the ocean side of the structure, indicating that it would

Surface equipment at Mar Rico Oil Company's O'Brien 1 is shown. This well has a horizontal drift of more than 3000 feet and a vertical depth of only 4250 feet. A combination 1- and ⅞-inch rod string is used, one of the few of this size. The gas engine is a 4-cylinder, 75-horsepower type, driving through clutch and V belt to air-balanced unit. This outfit has pumped as much as 900 barrels of oil daily.

be possible to develop the entire producing area from surface locations.

During the height of the slant hole drilling campaign, the average operator believed it would be difficult if not impossible to pump these wells profitably over a long period. The deviated wells did soon go on the pump, however, and after seven years of steady production on the beam, costs have not been prohibitive except in a few extreme cases. It might even be said that pumping costs in the carefully drilled slant holes have been lower than in a certain group of early "straight" holes drilled under the most competitive conditions. Since the deflected holes are considerably deeper than the older pumping wells completed as vertical producers, costs per foot of hole are not much higher than the average for the field. Pumping costs range from 10 to 40 percent higher in slant holes than in the least troublesome straight holes in the field, but in some of the most recent completions the apparent cost increase has been negligible.

About 115 deflected wells are on the pump in the field. Lifting costs in the various wells range from 8 to 40 cents per barrel, but operators are not in agreement on items included in lifting costs. One company with 10 pumping wells shows a monthly lifting cost under 15 cents per barrel, but smaller operators can not produce oil so cheaply. Some of the larger pumping wells have been produced during the first year with a lifting cost of 7 to 8 cents per barrel, plus depreciation and royalty. Various companies reporting lifting costs over monthly and yearly periods, and involving from 6000 to 100,000 barrels of oil, show an outlay of 12 cents to 38 cents per barrel. In a few extreme cases, lower and higher lifting costs have been reported. Some of the smaller operators do not include as many items in lifting costs as the larger companies, and it is doubtful if the very low lifting costs are correct.

Mar Rico Oil Company's O'Brien 1 shows a satisfactory pumping record, despite its remarkable range from vertical. This well has a horizontal drift of 3200 feet, a total depth of 5694 feet and an actual vertical depth of 4250 feet. The well carries an 8⅝-inch oil string over the oil sand around 4000 feet, and has a 3-inch tubing string to 5200 feet. A combination 1- and ⅞-inch sucker rod string is used, one of the few such strings in the field. About 2000 feet of the larger diameter is used on top. A liner type pump with spiral guide above is used.

This well has been on the pump about two years and has given little trouble, except immediately after completion. It was necessary to pull the rods and pump two or three times during the cleaning-up period at the start, but rods have been pulled only at eight-month intervals since the well started making clean oil. Sand gave trouble during the first two months, but regulation of production rate and back pressure proved effective. Spiral rod guides are used to check rod and tubing wear. Most of the wear is near bottom, a condition seemed to be caused by settling of dirt and sand. This well has pumped up to 900 barrels of oil daily. A 4-cylinder, 75-horsepower, automotive type gas engine furnishes the power. The drive is by V-belt through a reduction gear.

Well Drifts 3300 Feet Horizontally

Huntington Shore Oil Company's H. B. 1 reflects the vast possibilities of directional drilling. This well drifts more than 3300 feet horizontally, the maximum deviation from vertical being 62 degrees. With a total depth of 5674 feet, the vertical depth is only 4160 feet. Production from this well was recently stopped when drilling mud from a drilling well contaminated the producing zone. When production was restored, the well started pumping again at a rate of more than 200 barrels daily. This well carries a combination 2-

and 2½-inch tubing string to a point near bottom. A 1¼-inch, insert type pump is used with a ⅞-inch rod string. The well is pumped 20 strokes per minute with a 72-inch stroke. No rod guides are used. The tubing and rods have shown nominal wear, but some rod breakage has been experienced. A 6-cylinder, 30-horsepower, automotive-type gas engine is used, the drive being through a reduction gear with eight V-belts.

Current Development Interesting

The most interesting recent development has been the completion by Southwest Exploration Company of a large number of deflected wells bottomed under state tideland leases. All of these wells have been directed out under ocean leases from surface locations along the ocean front. Twenty-seven wells of this type have been completed, of which 25 are being pumped. The full development program calls for drilling 83 wells as slant hole producers, one well to be bottomed under each 10-acre tideland tract held by the state. All wells are being located along a straight line at the surface, about 300 feet from the ocean. The wells are being drilled in groups or units of two, four and five, each well in a group being located exactly a derrick width from the other.

In a group of five wells, a slab or block of cement about 130 feet long and 32 feet wide is used as a common derrick and pumping unit foundation. Steel tracks are laid the full length of the cement slab, running lengthwise in the manner of a street car track. The rails afford a runway and foundation for a steel derrick that serves all five wells. The derrick rests on rollers, and when a well needs servicing the derrick is rolled into position over this well. Base plates are embedded in the concrete along the track to hold the derrick in place over each well. Raised concrete slabs are placed opposite each well for handling a cleaning-out unit.

This company is using comparatively light equipment in all pumping operations. Depth of the wells varies from 4300 to 5600 feet, the drilled depth depending on the drift necessary to reach the 10-acre tideland tract. A 12¾-inch surface string is cemented at about 750 feet, and a full 8⅝-inch casing string cemented over the oil sand at about 3800 feet. A 7⅝-inch hole is continued to bottom, then scraped to a full 8⅝-inches. A 6⅝-inch, 80-mesh liner is then run to a point near bottom.

All wells are equipped with 2½-inch tubing and ¾-inch sucker-rod strings. Insert-type pumps are largely used. These wells have been so carefully drilled that rod guides are not necessary. A number of prime movers are used successfully. Some of the lighter wells have been pumped with 7½- and 10-horsepower electric motors, but 20- and 30-horsepower automotive-type gas engines are widely used. The drive in both cases is by V-belt.

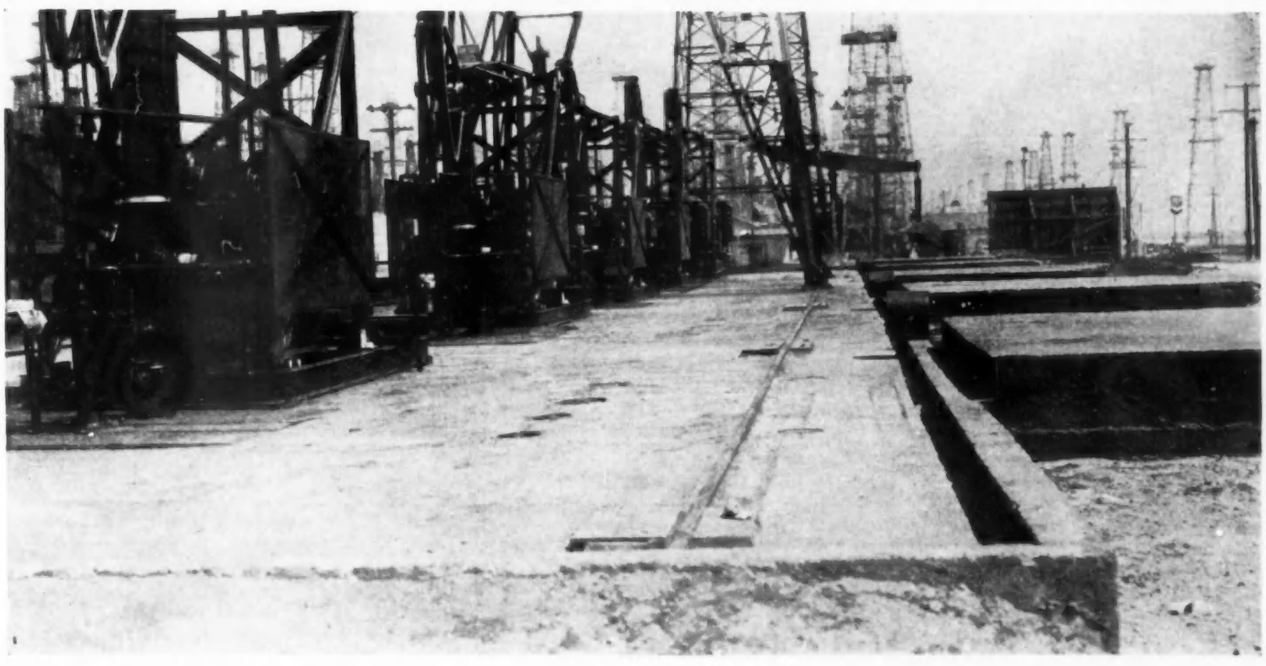
A displacement-type meter is used on each well. Separators are placed ahead of the meters on wells showing excessive gas, but on most of the wells separators are not required. The tanks are gauged against the meters, but the meter error has been negligible.

Sand has been the only source of serious trouble in this group of wells. Wells free from sand pump from several months to a year without trouble, and rods and tubing show little wear. New wells make sand for a short time but soon clean up and produce with minimum sand encroachment. In a few wells pumped during the short cleaning-up period, rods and rod boxes were worn flat on the lower side. These cases, even in the new wells, were exceptions. Some of the pumping wells have been steadily on production for 17 to 19 months without trouble of any kind. On initial pumping tests individual wells have produced up to 700 barrels daily.

Clean-Up Pumps Used

Use of temporary or clean-up pumps has been satisfactory in many wells. Such pumps are pulled as soon as the hole has been thoroughly conditioned, this early production period lasting from a few weeks to three months before installation of a permanent pump and rod string.

Wells carefully drilled with a fairly uniform slant or angle from



Southwest Exploration Company is drilling slant holes in rows of four and five to develop state leases under the ocean. Derrick shown over the fourth well in this group of five moves along a track common to all wells. Concrete slabs shown at right are foundations for pulling units that may be needed.

vertical, and completed with oil as a drilling fluid give minimum trouble during the cleaning-up period. The most recent practice calls for drilling within a 100-foot cylinder in the upper part of the hole. This means that the actual course of the hole must not vary more than 50 feet from the ideal, or proposed course. A well following this exact course for the first 2000 feet, and then completed with a uniform drift gives little trouble as a pumping producer.

Many of the first wells completed as deflected producers had from two to six doglegs or sharp turns that have been the source of mechanical trouble. Rod guides are extensively used in wells of this type to prevent rod and tubing wear. From two to 150 guides are used, but wear usually is greatest near bottom. A spiral grooved type guide has been used with considerable success in many wells, maximum diameter of the guides being only slightly less than the inside diameter of the tubing. They are placed in the rod string where wear is greatest, usually one guide to each rod at sharp curves in the hole. Anchor type tubing catchers have been widely used.

An average pumping well handling a large fluid volume carries a 2½-inch tubing string, about 1800 feet of ⅞-inch and 3300 feet of ¾-inch sucker rods and 2½-inch by 1¾-inch by 12-foot liner-type plunger pump. Various adaptations of standard pumps are used successfully, with 1¼-inch polish rods and no one pump may be called an absolute standard for the field.

The maximum production rate can not be maintained in low fluid-level producers, due to sand encroachment. The fluid must be kept above the offending strata to prevent excessive entrance of sand. Wells are pumped from 15 to 25 strokes per minute with 48- to 72-inch strokes. The pumping rate is an important consideration in the more sensitive wells.

The formation pressure in the older section of the field is low, the shut-in pressure on the casing being as low as 65 pounds. In the newer sections of the field this pressure ranges up to 300 pounds. Weak wells are produced as near atmosphere pressure as possible at the casinghead. Pumps usually are set near bottom. The static fluid level ranges from 2000 to 4500 feet in a large group of wells with an average depth of 5000 feet, an adequate fluid level being a primary requirement for satisfactory pumping operations. The fluid level is low in many wells.

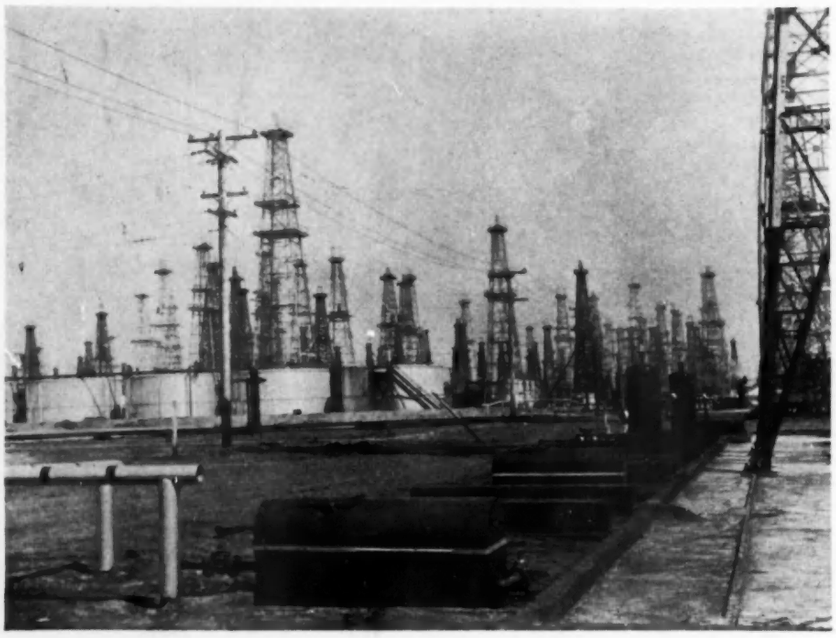
The oil, free from sand, acts as a lubricant between the rods and tubing, and wear has been negligible in many wells. In other clean wells, wear has been gradual, even where sharp turns are present. The tubing obviously shows greatest wear on the lower side, but where a hole is quickly changed from a vertical course to a slanting course it is possible that rods cause greatest wear on the upper side of the tubing at the point of kinking. The grooves or "key seats" in the tubing are known to form gradually in clean wells with adequate fluid, but in a few cases where tubing leaks occurred and wells were pumped without fluid, rod and tubing wear was severe in less than an hour. Sand encroachment also causes almost immediate trouble.

Many rod failures have been traced to severe wear of the couplings. A large number of rod strings have been pulled before parting occurred, but not before wear at the couplings had exposed the threads on both pins. Outright failures have occurred where the couplings have been completely worn away on one "side." The worn portions of the tubing strings may be checked against the survey of the holes, as a means of determining the effect of drift angle on pumping operations. The tubing always shows wear at the point of severe wear of sucker rod couplings, this form of tubing wear usually being in the form of a neat groove. In most cases the rod coupling rubs the tubing, but this may not always be the source of trouble. The rods sometimes wear flat midway between the couplings, this type of wear usually showing on the tubing as a wide groove.

The first wells completed as deflected producers came in with good flowing yields. That group later passed through an intermediate producing period, by virtue of various gas-lift installations. Most of the first producers paid for their costs with flush production. New producers and older flowing wells no longer pass through the intermediate gas-lift stage. They go on the pump immediately when completed as weak wells, while failure of the older flowing wells also prompts immediate installation of pumping equipment.

Mechanical action of the submerged pumps has not been seriously affected by inclination of the holes, where other factors are favorable. Pumps have been placed near bottom in several wells with low fluid levels, and maximum production has been reduced to less than half of that of three years ago. Change of equipment and pumping rate to meet reduced income has kept many wells on production.

Water has not yet given serious



These trunk-type containers house displacement type meters used on each pumping well. The two small separators shown in the background are used ahead of meters on wells showing excess gas, but ordinarily these are not needed.

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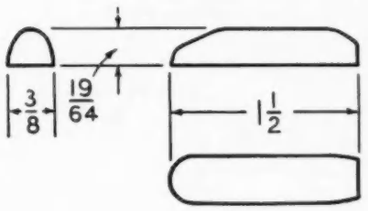
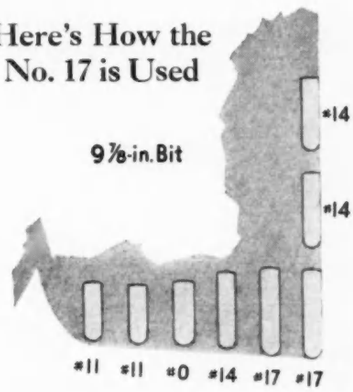


Here's How the No. 17 is Used



The Haystellite No. 17 insert is intended for use as the first insert or two on the cutting edge, next to the reaming edge. A typical application of Haystellite cast tungsten carbide inserts, including two No. 17's, is shown here.

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TU 234-JD23TB UNIT PUMPER

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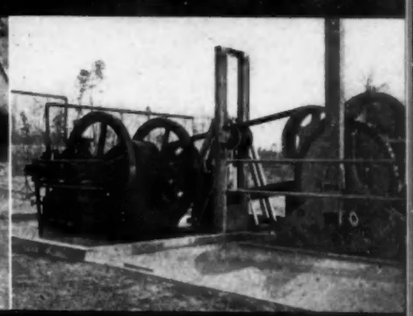
THREE WELL HOOK UP

FOUR WELL HOOK UP

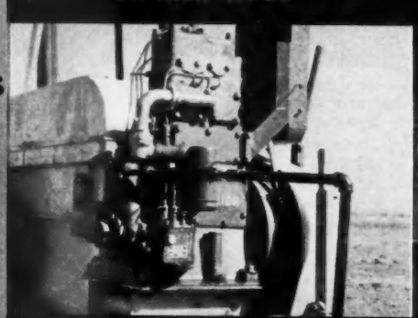
GEARED POWERS

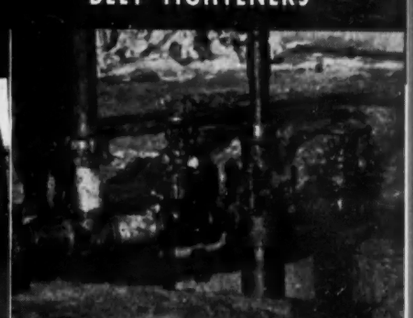
SUCKER RODS

PUMPING JACKS



BELT TIGHTENERS





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Plus . . . A STAFF OF FIELD ENGINEERS THAT ARE PREPARED TO MAKE INDIVIDUAL WELL OR COMPLETE LEASE STUDIES OF ANY PUMPING PROBLEM

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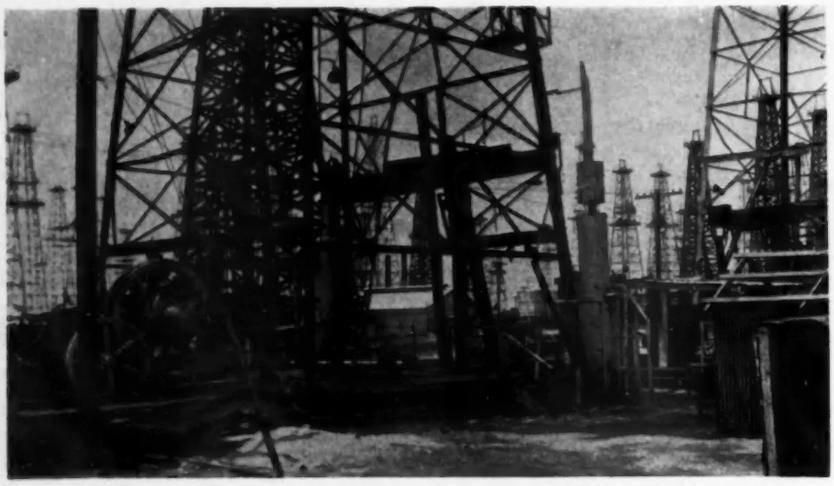


This well shown on beam in the foreground, Huntington Shore Oil Company's H. B. 1, has a horizontal drift of more than 3300 feet, a vertical depth of 4160 feet and a total depth of 5674 feet. When placed back on production recently after a shutdown due to drilling mud from another well, this deflected well pumped 225 barrels daily.

trouble in deflected wells. Bottom water is encountered immediately below the oil zone at a vertical depth of about 4290 feet, but the average drilling well is stopped considerably short of this level. Near the center of the field water is first found at a vertical depth of about 4360 feet, under low head and with medium salinity.

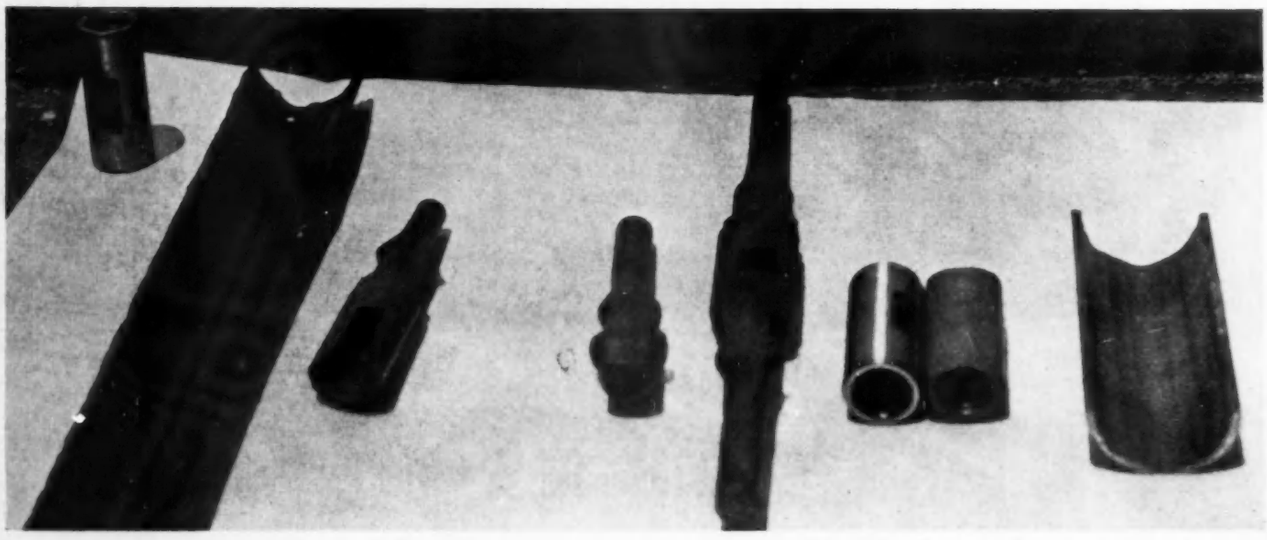
Economics, rather than mechanics, has begun to make itself felt in slant hole pumping operations at Huntington Beach. The reduced fluid level, lower average well yields, smaller well allowables, threatened price reductions, and higher lifting costs have been felt in the older section. Four years ago many wells pumped from 400 to 700 barrels of oil daily. Such high well yields are a thing of the past, but the average deflected producer is still safely above the marginal bracket. It is not believed that wells may be pumped profitably with a daily production under 25 barrels. Certain fixed production costs can not be avoided, but there is no agreement among operators as to the probable minimum daily yield that will result in abandonment or working over of weak producers. The average well is still far above the critical production point.

Wells being completed along the west side of the field are producing from virtually virgin territory. The heavy pumping production period for this group lies ahead, and several years will be required to place these newer wells in the present position of the original town-lot producers. A few wells are still flowing naturally, but the average completion goes on the pump immediately.

Lifting costs have increased appreciably in the older wells. Several wells that pumped up to 500 barrels daily after the flowing period with a lifting cost of 7 to 10 cents per barrel, are now yielding less than 150 barrels daily with a lifting cost of about 20 cents per barrel. One well favorably located produced more than 150,000 barrels of oil on the pump in one year, but dropped to about 75,000 barrels the second year. After five years, production has declined to about 3000 barrels monthly.

Many operators at Huntington Beach pay an agreed amount each month for maintenance of surface equipment at pumping wells. Several small companies have found it profitable to transfer the maintenance of wells to local machine shops. The usual cost for this service is $8 to $10 per month per well, the charge including labor required for repairs.

An attempt at evaluation of slant hole drilling, where production is expected via beam pumps, leads to the conclusion that inaccessible leases may be profitably developed by the practice in the average field that has been or may be successfully developed by vertical drilling. The Huntington Beach field has been developed since 1933 with deflected holes of every type. Many old holes were redrilled from the shoe of the surface string, others were started haphazardly from the surface, and the more recent wells were correctly drilled according to plan. Successful pumping operations are being carried out in wells of all three types.



The effect of sand on rods and tubing is shown by the picture below. The tubing section at left is deeply grooved, while the shorter section at right shows wear from slapping action of the rods. Couplings lying down are severely worn. The bright coupling, third object from left, is new. The coupling next to it, at right, has been worn to paper thinness.

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● In the work-a-day world most activity ceases by sunset. Men and machinery quit their tasks, and night is reserved for rest.

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In the producing division of the oil industry alone, thousands of pumping wells are being operated by Utility Electric Power—starting and stopping automatically as if controlled by an unseen hand.

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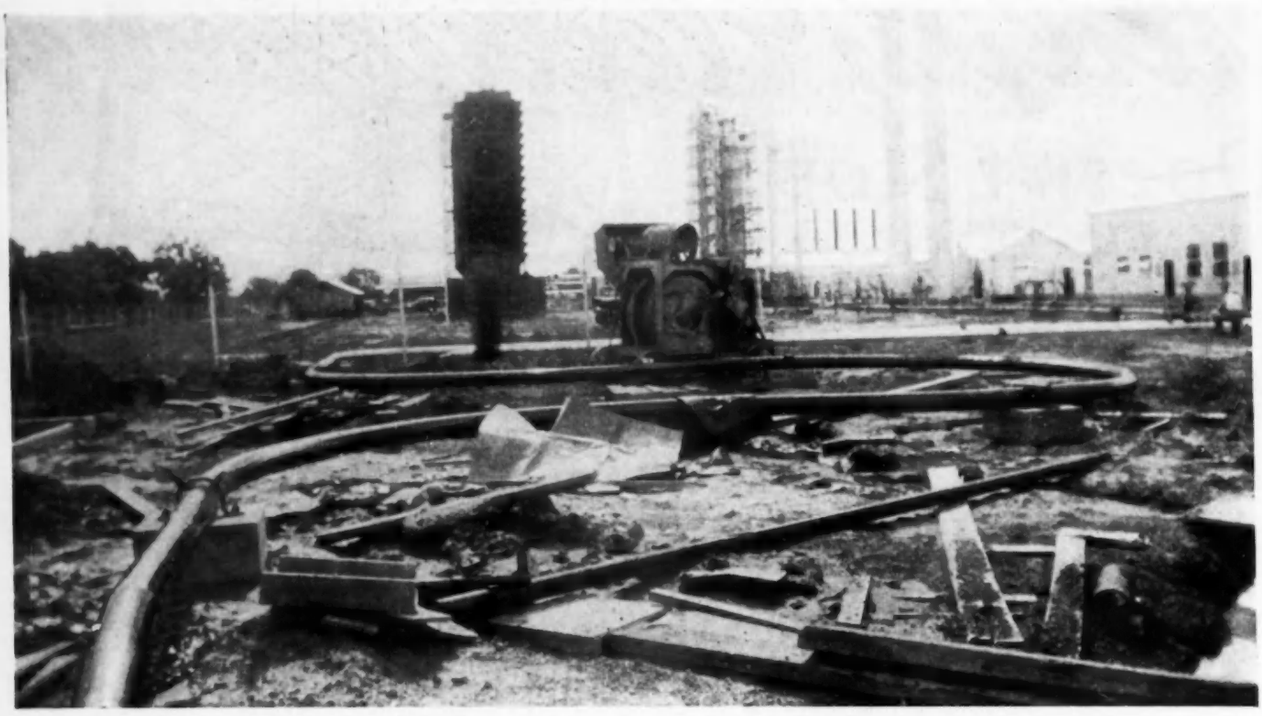

This expansion loop in the 6⅝-inch 36.40-pound return line was prefabricated and field-welded to end of "stovepiped" line. Wall thickness of this pipe is 0.562 inch, of seamless Grade B line.

Laying Thick-Walled Lines for Recycling System

CONSERVATION of the high well pressures throughout the recycling system requires installation of gathering lines capable of carrying the well output under pressures ranging up to 2000 pounds per square inch and higher. The tonnage of steel incorporated in such a system is several times that of the usual gravity or low-pressure pumping gathering network, and the laying, joining and maintenance of the heavy pipe introduces difficulties and poses problems not affecting ordinary line work.

In one such system, the pipe material bill called for

Footage	O.D. in.	Wall thickness in.	Wt. per foot lbs.
9,462	2⅞	0.276	7.66
10,861	3½	0.289	9.91
9,302	4½	0.337	14.98
7,724	5 9/16	0.375	20.77
7,671	6⅝	0.432	28.57
2,068	6⅝	0.562	36.40

and incorporated three 6-inch and 15 3-inch meter runs. The pipe used was Grade B, plain end, mill beveled to an angle of 37½ degrees, affording a 75-degree vee to be filled with welding bead. Double length, or 40-foot, joints were specified, reducing by half the number of field welds.

Specification of a minimum cover of 36 inches on all lines to limit weather expansion changes necessitated unusually large bell holes to permit the joining of the double-length joints, all connections being made by "stovepiping" added sections to the lines already laid. On the 2⅞-inch pipe, three beads were specified, the first being a continuous stringer laid on through 360 degrees, the second and third being built up through 180 degrees and reversed.

Welding of the heaviest pipe listed, the 2068 feet of high-pressure return line to the input well, required six beads, consisting of the same type of continuous stringer and five alternated beads to complete the joint.

Welding Schedule

The welding schedule worked out for handling this line called for one welder to operate exclusively to run the stringer beads, with three finish welders, each completing a series of adjacent welds and then moving ahead of the sections being worked to begin on a new group of sections joined solely by the stringer beads.

Terrain traversed by the gathering network involved but two stream crossings, in each instance by a 2⅞-inch line. Twin-cable suspension bridges, consisting of rectangular pipe towers set in twin

MUD when you need it!

. . . that's the governing principle in the design of Gardner-Denver Slush Pumps. On the deepest holes . . . in the most difficult formations . . . G-D pumps stay on the job.

Equipped with Slush-Proof liners and alloy steel pistons and rods, Gardner-Denver pumps are highly resistant to wear and abrasive fluid action. Center-guided, Duo-Seat fluid valves give a positive seal under highest pressures and cut valve replacements. Eccentric design on the power pump, permitting the use of straight steel main shafts and eliminating conventional cranks and keyways, makes possible large bearing areas, reducing wear. Herringbone gears with a special oil field tooth form are designed to withstand heavy overloads.

G-D steam pumps have telescopic rocker arms to actuate the roller bearing steam valve motion — securing exceptionally smooth operation and increased wear. The steam valves offer perfect seal with minimum friction.

Built in a complete range of sizes for both mechanical and steam rigs, there is a Gardner-Denver pump for the shallowest well or deepest hole now contemplated. Call Continental for complete information.

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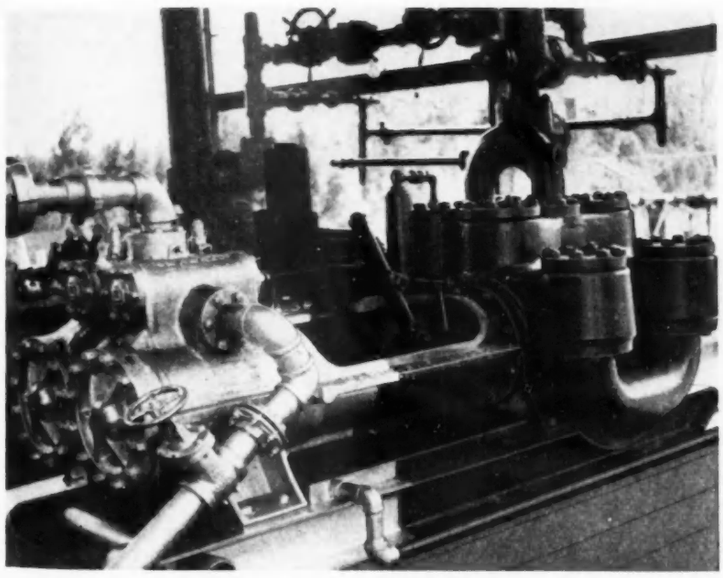
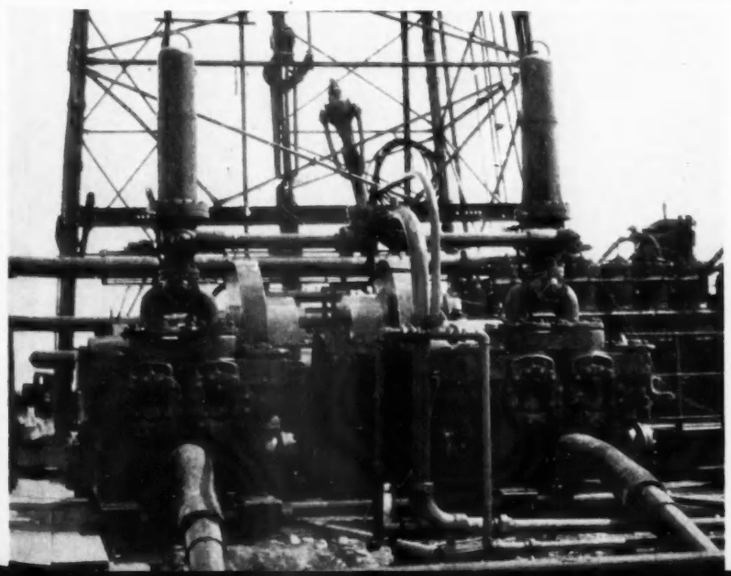
SLUSH PUMPS





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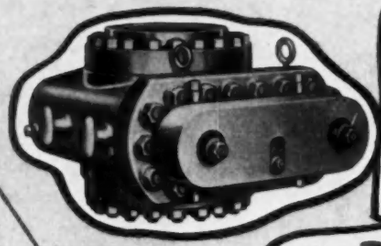
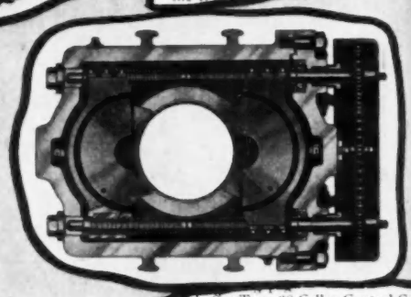
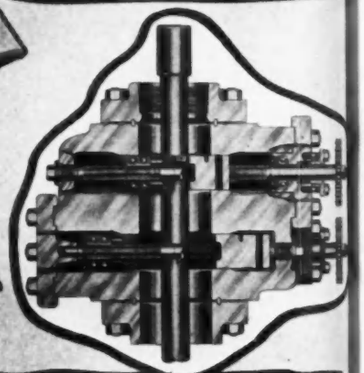


NEW FEATURES INCREASE EFFICIENCY OF TYPE 38 GATE

Long field experience and practi along with continuous observation of ever changing requirements for safe co trol of high pressures have been respo ble for many outstanding improveme which have resulted in the greater si plicity and strength incorporated in Shaffer Type 38 Cellar Control Gates sealing efficiency, heavier ram tion and other features the follo



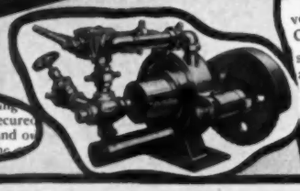
Shaffer Type 38 Cellar Control Gates tain all the patented and salient featu of the previous Shaffer designs which have alwa provided maximum safety while drilling, positi protection against blow-outs and the successful ho ing of extremely high pressures indefinitely with drill pipe either in or out of the well. They requ the minimum of vertical space in the cellar and the is no interference with drilling operations.



SHAFFER DOUBLE CELLAR CONTROL GATES

The Shaffer Double Cellar Control Gate has been designed for use where the vertical space available is so small that it is desirable to reduce even the very small space required for two single gates and the connecting spool between. The two ram compartments comprising the Shaffer Double Cellar Control Gate are modeled after the Shaffer Type 34 Cellar Control Gates with the upper compartment having rams to close around the pipe and the lower compartment equipped with rams for a complete shut-off when the pipe is out of the hole.

The Shaffer Adjustable Flow Bean line but also provides a means of regulati accuracy. This control and regulation is secure form a needle valve. The tip is moved in and o the annular opening between the tip and the is designed on the

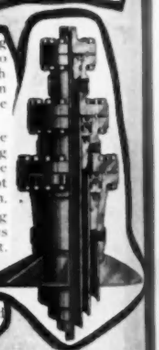


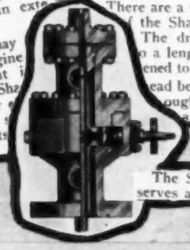
The Shaffer Gate Closing Engine is a recently developed, sturdy unit which closes or opens Shaffer Cellar Control Gates with a speed never before possible. It is rugged in construction, simple in design and operation, and with reasonable care will last indefinitely. It can be installed on the mat under the rig, or at any desired point away from the de The Shaffer Gate Closing Engine is desi steam operation, however, it will operate w at slightly less acceleration. The gate may closed by hand at any time by means of slipped on an exte

or two gates may Closing Engine an attachment table to any Sha w, and also for aster valve or Universal Joints

The Shaffer Full Opening Spool Type Landing Heads meet the demand of those operators who wish to place a Landing Head on the well and drill through the head. As can be seen in Figure 69, a companion flange is bolted to the top of the head into which the drilling connection is screwed.

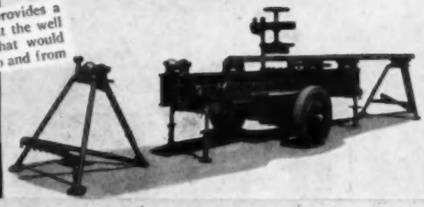
There are a number of advantages accompanying the of the Shaffer Full Opening Spool Type Landing The drilling connection, for example, can be o a length with the head in place and need not ened to allow for a head when casing is to be run. ead being full opening for the size casing being ough permits changes in casing programs anging the size of slips and packing unit.



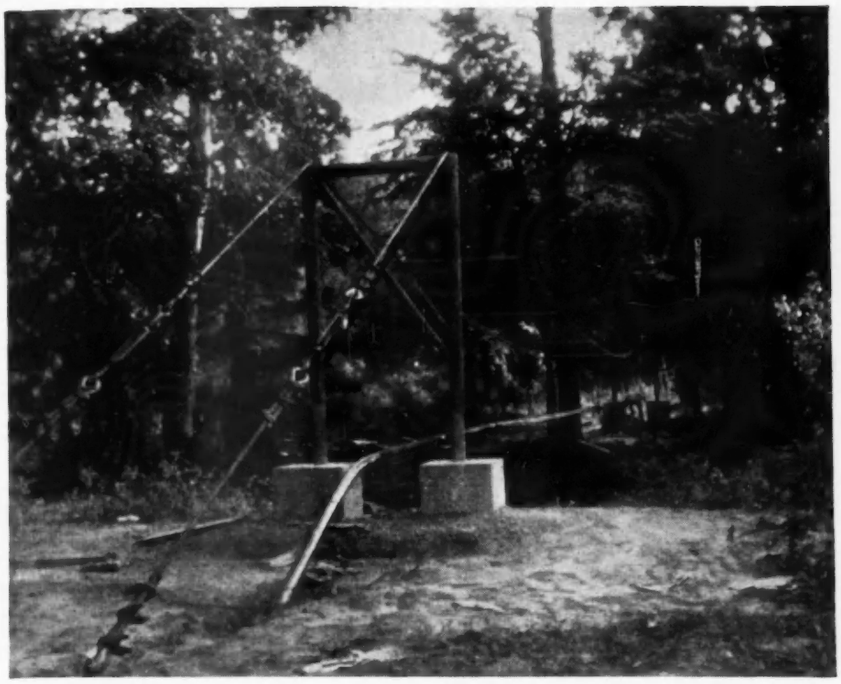


The Shaffer Universal Tubing Control Head serves as a blow-out preventer while drilling

The Shaffer Portable Pipe Straightener provides a means of straightening bent or kinked pipe at the well and eliminates the cost and loss of time that would otherwise be necessary to transport the pipe to and from a shop



LEARN ABOUT THIS COMPLETE LINE OF THE LATEST, SAFEST AND BEST IN PRESSURE CONTROL EQUIPMENT AND FISHING TOOLS!



Creek crossings for the smaller gathering lines provide lateral support, even though set well above flood levels.

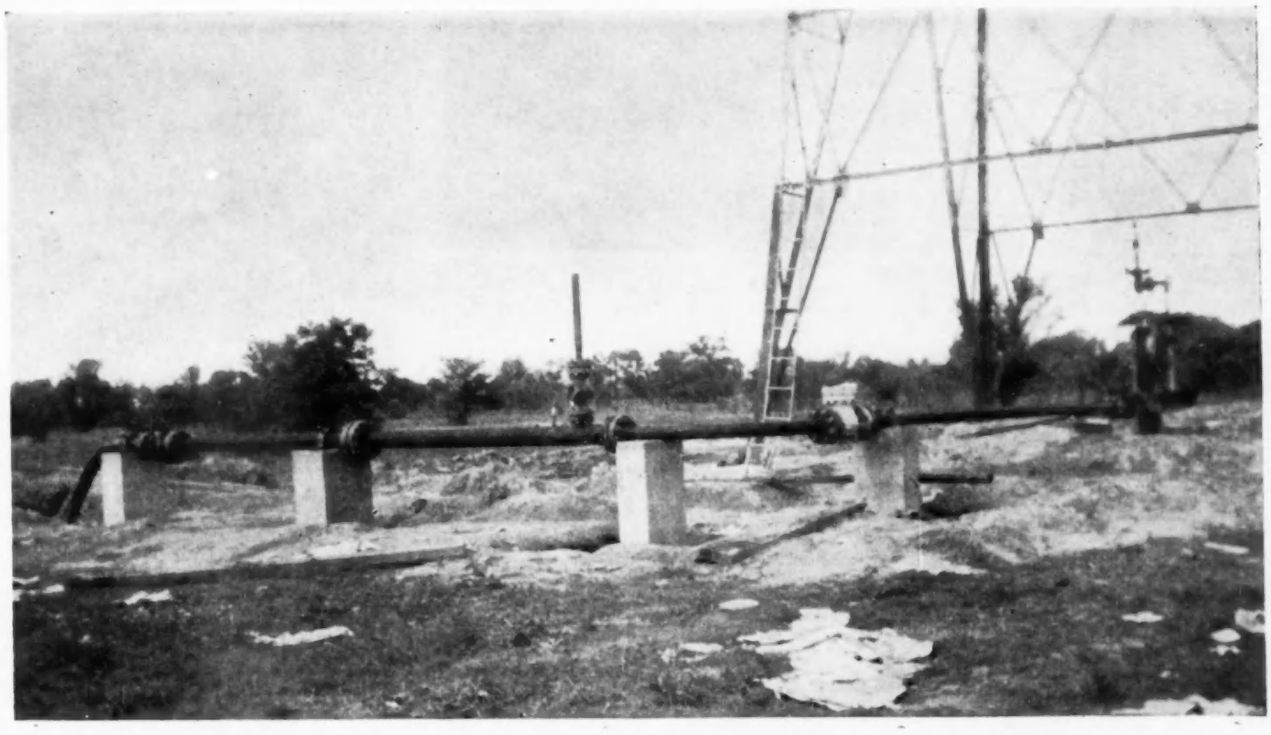
concrete bases, carried the two cables, from which the usual triangular pipe supports were slung, the stiff-leg across the cables maintaining desired spacing, while the drop wires provided for lateral adjustment and longitudinal elongations under expansion. The towers were built high enough to carry the exposed sections of pipe above normal high-water marks, and thus minimize the possibility of being fouled by floating debris, with consequent severe stresses in the down-stream plane.

Prefabricated turns, mill formed to specified radii, were used throughout the system for such abrupt changes of direction as at meter settings, in which the 90-degree transition was accomplished through a gradual sweep turn instead of the short leg of a standard ell. For more gradual shifts of direction, wrinkle-bending was applied in the field to secure the desired alignment on all but the heaviest pipe laid, that in the return line. For bending the lighter, or 28.57-pound 6⅝-inch line, a No. 12 welding tip was required to maintain the desired degree of heat in the 0.432-inch wall and permit the bends to be made quickly and accurately.

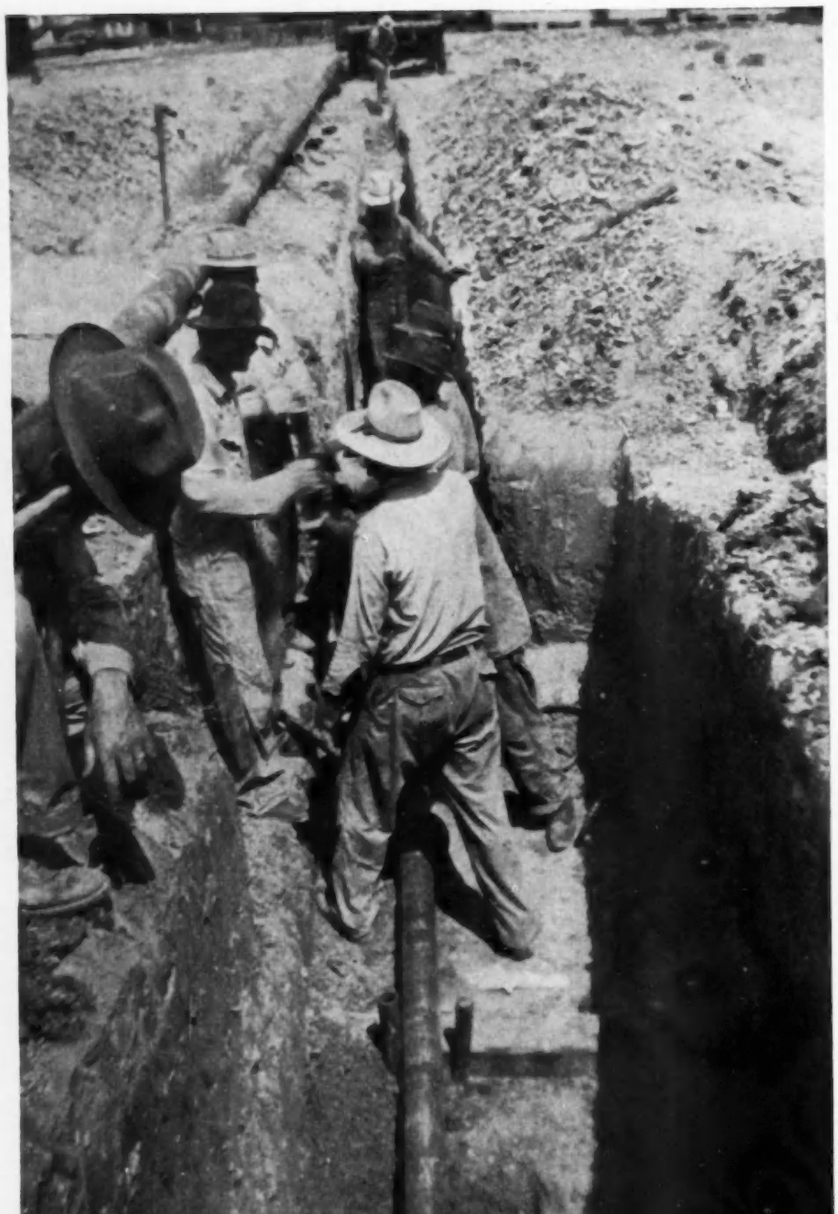
Where vertical shifts were required, as at the creek crossings, the bends were either put into the joint prior to being stovepiped to the line, or formed after completion of the finish bead, as conditions permitted.

Valves Located to Facilitate Maintenance

Block valves incorporated in each branch as well as in the main lines, permitted the isolation of any section in case of maintenance work being required, the valves being carried on welding flanges, and buried in drained concrete pits. All lines entering the recycling plant were tied in to individual



Prefabricated turns, welded flanges and carefully aligned concrete supporting piers maintain the high-pressure main and provide for expansion shifts without added stress.



Long bell hole accommodates welder at each end of valve tie-in as well as adjacent weld in line.

expansion joints of the yoke-and-sleeve type, the joint boxes likewise being of concrete, and set at standard pipe gradient of 36 inches below the surface.

As welding of a section progressed, testing and coating proceeded as permitted by weather and construction conditions. The pipe was cleaned of dirt adhering to it, hot doped with three coats, consisting of one primer and two enamels, and then carefully checked and tested with a radio-type "holiday" detector. To expedite the work, only a 180-degree arc of pipe circumference was swept with the detector at each pass, checks being made in both directions along the pipe on each half covered. Other than the hot dopes, no other corrosion-resisting material was considered necessary, reasonable care being exercised in lowering the pipe into the ditch to avoid cracking or chipping the finish coats.

At the recycling plant end of the heavy 6⅝-inch line an expansion loop, assembled of prefabricated, shop-formed quadrants, was tied in to the straight pipe beyond concrete supporting blocks, which permitted shifting of the line along its length without imposing binding strains on the retaining straps. This expansion loop was tied to the buried line by means of paired prefabricated sections designed to absorb the transition between required underground gradient and height of the loop on its supporting piers.

Testing of the system following welding was for a specified working pressure of 2000 pounds per square inch, with the return line being subjected to test pressures between 3000 and 4000 pounds due to the temporary refusal of the return well to accept gas at the time the test pressure was being built up. No leaks, sweats or other defects showed up in any of the more than 1200 welds required for joining together the total of more than 47,000 feet of pipe in the network.

Wood Engineering & Construction Company of Arp and Tyler, Texas, served as contractor on the laying of this gathering and return system, and illustrations used are through the courtesy of that company.

Even thick-walled pipe can be wrinkle-bent as this 6⅝-inch, 28.57-pound pipe shows. Wall thickness is 0.432 inch and required No. 12 welding tip to preheat.

DRILLING CONTRACTORS' NOTEBOOK

Helpful Suggestions For Those Interested In Drilling Methods

Operating Ideas Maintenance Hints New Rig Hook-ups

Published as a regular feature of THE OIL WEEKLY

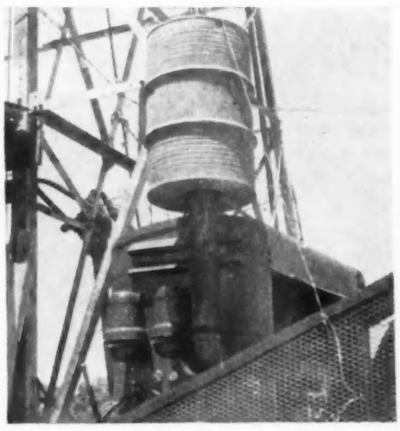
1. TRANSPORTATION

Closed Ends Keep Dirt from Entering and Increasing Weight of Pipe Skids

Flat steel disks, welded across open ends of pipe forming skids on this shale-shaker, prevent accumulation of dirt within the pipes with consequent added weight.

WHERE four or six-inch pipe is used for equipment skids, and the ends are canted or elevated, the pocket thus formed frequently fills with water, dirt and rust, adding appreciably to the weight of the unit, and making more difficult the loading and transfer of such units between wells.

Penrod Drilling Company expends a little more time and material on the skids at time of manufacture, welding a disk of metal across and sealing the ends of the pipe. Not only does such a disk strengthen the pipe and prevent deformation under impact, but it also effectively shuts out water and dirt and maintains the skids at the weight as of manufacture.



This oil drum, mounted over the engine exhaust pipe, muffles exhaust noise.

2. RIGGING UP

Oil Drum Serves as Engine Muffler

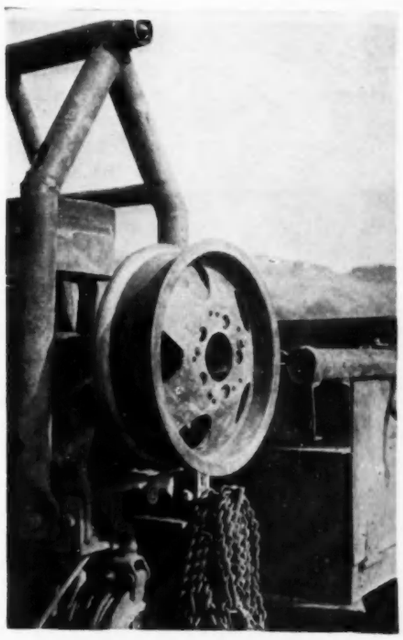
IF IT is desirable to dampen the noise of the exhaust of a drilling or mud-pump engine, muffler may be made from an oil drum that has a hole cut in one end large enough to slip over the vertical exhaust pipe.

For the support of this drum, two strips of metal are connected to the hood of the engine and tacked to the exhaust pipe at the level required to hold the drum in position. Small holes are punched in the top end of the drum to permit the escape of burned gases, but not large enough to allow the noise to escape at the same time. The capacity of the average drum is enough to allow the gases to expand before passing through the punched holes, dampening the noise.

3. TRANSPORTATION

Truck Wheel Provides Large Cathead

STANDARD cathead on loading winches mounted on his trucks were found to be too slow for cer-



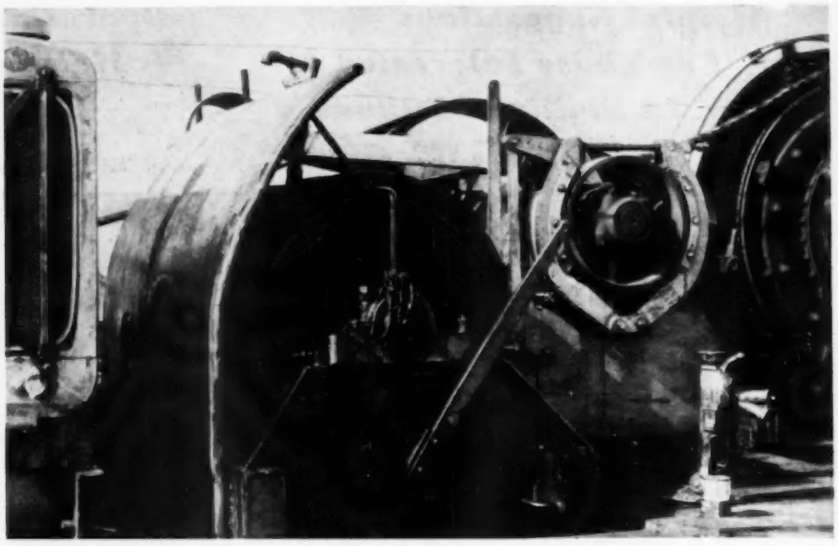
A wagon wheel serving as a cathead facilitates truck equipment loading.

tain types of loading by a contractor who operates in several Western Kansas fields. The trucks were equipped with winches of the type integrally connected to the drive shaft and having a cathead on each side of the winch.

A 20-inch truck wheel was spotted and bolted to the outer flange surface of one of the catheads, making it possible to operate the catline at a speed several times faster at any given speed of the winch than could be done with the smaller cathead.

The auxiliary rim, although limited in application to certain types of light work such as loading drill pipe, casing and light equipment, has materially reduced loading time at each location. Heavy work is switched to the cathead on the other side without changing gears in the winch.

On steady jobs where it was known that heavy work was to be encountered continually, the larger rim is removed by unfastening the bolts, converting the cathead back to its normal size.



This shield catches spray from sand-line reel before it reaches adjoining equipment.

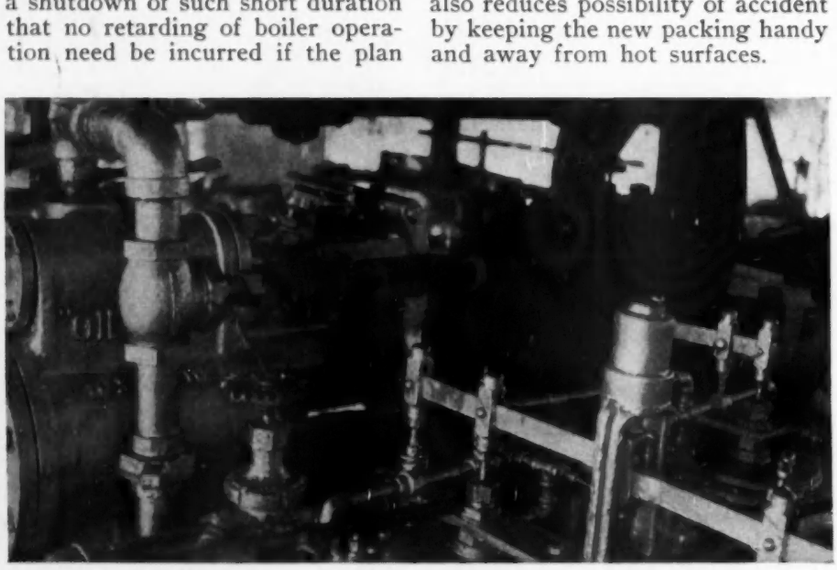
4. MAINTENANCE

Packing Supply Ready for Emergency

PACKING failure on a drilling-rig boiler feed pump may result in a shutdown of such short duration that no retarding of boiler operation need be incurred if the plan adopted by one drilling-rig fireman is followed.

On the throttle valve extension is placed a complete set of new packing, the split rings opened and placed over the pipe extension in the order they would normally be placed on the pump rod. Then, to replace a set of damaged rings, it is necessary only to slip each new ring off its holder and face it in the same direction and in like order on the pump rod.

When working in a hurry on hot pump equipment, packing thus laid out in advance not only cuts the time on a repacking job, but also reduces possibility of accident by keeping the new packing handy and away from hot surfaces.



Throttle valve extension serves as a rack for spare packing for emergency use.

Where such a throttle extension is supported or divided at or near its center, extension of the plan to a set of hydraulic packing for the water end speeds up replacement work at this point.

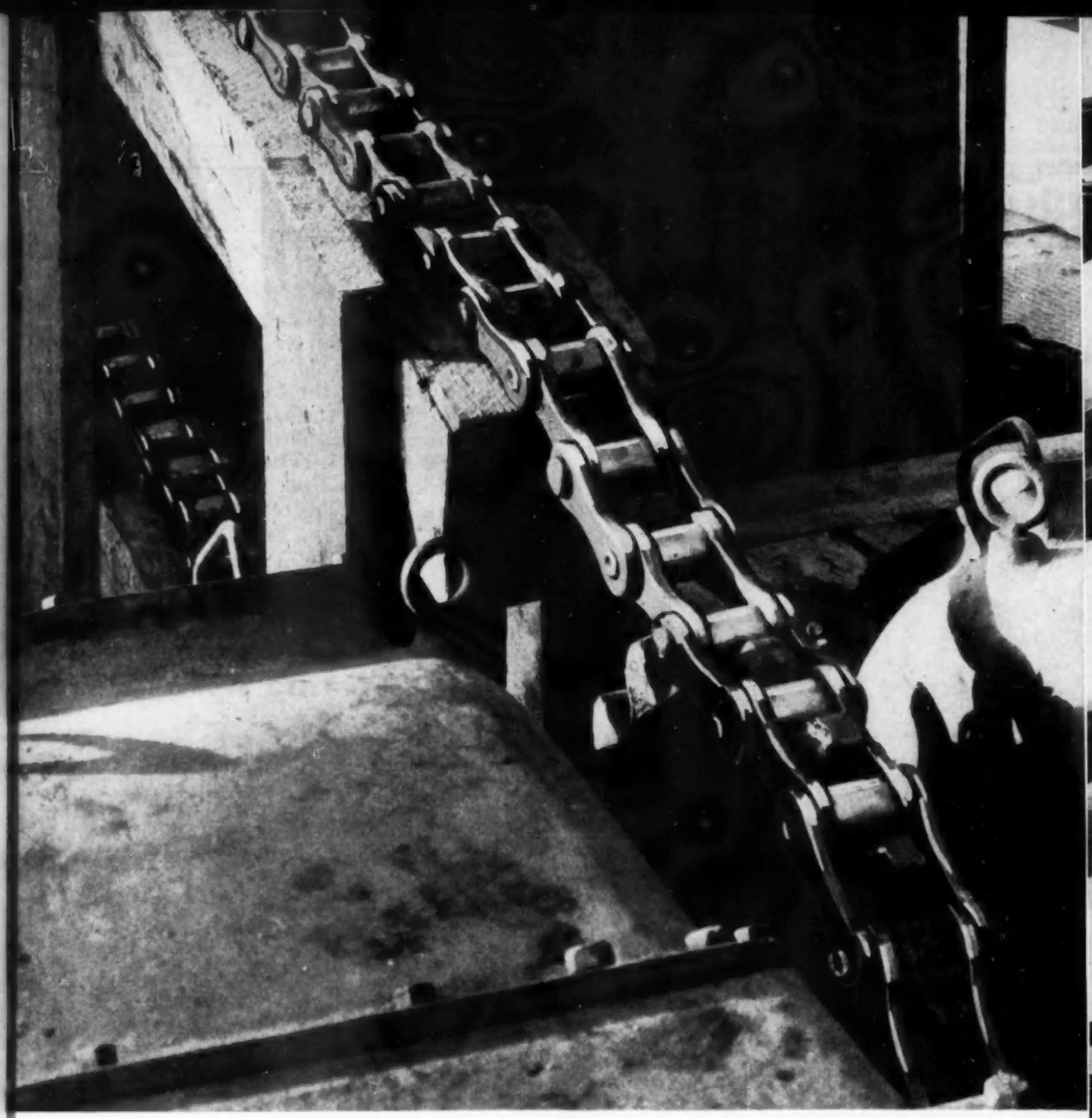
5. RIGGING UP

Engine Protected From Dirt Spray

A CONTRACTOR operating in Western Kansas eliminated one of the chief sources of oil and mud spray over the adjoining engine and equipment by mounting a removable curved shield just back of the sand-line reel.

Made of 14-gauge sheet steel, the shield is tack-welded at short intervals along its sides to upright lengths of 1½-inch pipe curved to extend over the reel as far as the sand line will allow. A horizontal piece of pipe, similarly welded, forms a rigid support across the top. The shield is sufficiently wide to extend a foot or so beyond each side of the reel. An 8-inch length of 2-inch pipe welded to the side at each end of the sled base of the reel allows the two legs of the shield to be set firmly in place.

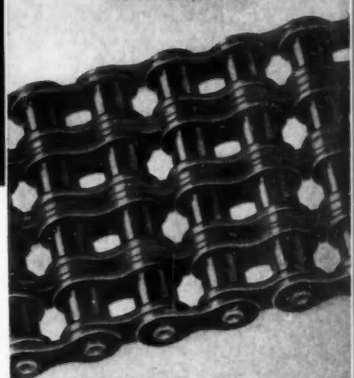
The light construction of this spray shield adds very little to the total weight of the equipment, and can be instantly removed for cleaning or respooling the reel.



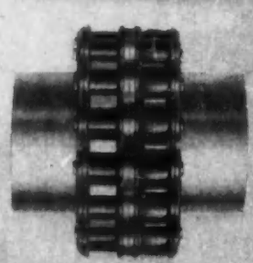
BALDWIN MASTER
1244-SS—185,000 lbs.

BALDWIN
SUPER SERVICE
1030-SS— 66,000 lbs.
1240-SS—140,000 lbs.

BALDWIN FULL FLEX
SS-3— 43,000 lbs.
SS-4—100,000 lbs.



BALDWIN MULTIPLE ROLLER CHAINS
FOR DRIVES UP TO 500 H.P.



BALDWIN ROLLER CHAIN
FLEXIBLE COUPLINGS

MASTER . . .

FOR DRILLERS WHO WANT LOWER COST PER FOOT OF HOLE

When the oil lies deep and you've been drilling for weeks without giving your chains a thought . . .

When there are thousands of feet of pipe in the hole and some "boll weevil" at the controls slams the clutch in at full throttle, throwing untold strains on the chain . . .

When the whole crew from derrick man to "the man on the pot" have just hit their stride, and the bit's biting footage in a business-like way . . .

Then's when it's good to know that Baldwin Master chain is on your rig—bringing 185,000 lbs. of sturdiness to the job of transmitting *all* the power *all* the time! For your hard, deep-well drilling there's nothing like the service you get from Baldwin Master oil field chain. Available in both offset and straight side-bar design.

For Sale in All Oil Fields

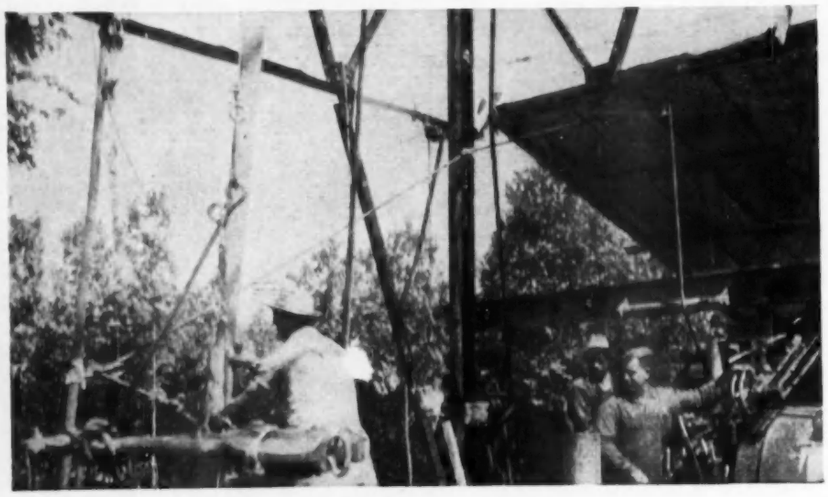
BALDWIN-DUCKWORTH
Division of Chain Belt Company
341 Plainfield Street, Springfield, Mass.
Factories at Springfield and Worcester, Mass.

BALDWIN

CHAINS TRANSMIT ALL THE POWER

6. DRILLING

Kelly, Guided by Rope Through Overhead Sheaves, Protects Men on Derrick Floor



A rope run through several overhead sheaves facilitates transfer of kelly to rathole.

TO MAKE it easier to set the kelly in the rathole with safety to men on the floor, a rope running through several small sheaves may be used. The end at the kelly is equipped with a hoop that slips over the lower end of the kelly when it is broken out of the tool joints, and the other end is used over the cathead. The danger of a man being struck by a swinging kelly is offset by a smooth positive pull, and the joint can be set down without damaging the threads on the pin.

This adjustable bull-rope rest aids in reworking the drilling-in equipment.

7. RIGGING UP

Adjustable Rest for Bull-Rope

A WESTERN Kansas drilling contractor utilizing rotary equipment to drill to the lime pay, where pipe is set before drilling into the formation with cable tools, saves time in reworking his drilling-in equipment on each new setup by making the bull-rope rests adjustable to any type of derrick condition he may be called upon to face.

Four vertical 2-inch pipe standards welded to the steel base of the unitized mounting make up the corner supports of the wooden framework. A number of 5/8-inch holes approximately 2 inches apart were drilled through these pipes to allow the sturdy wooden cross-supports to be raised or lowered to any desired position, depending upon how high or low the derrick floor happens to be in relation to the drilling front.

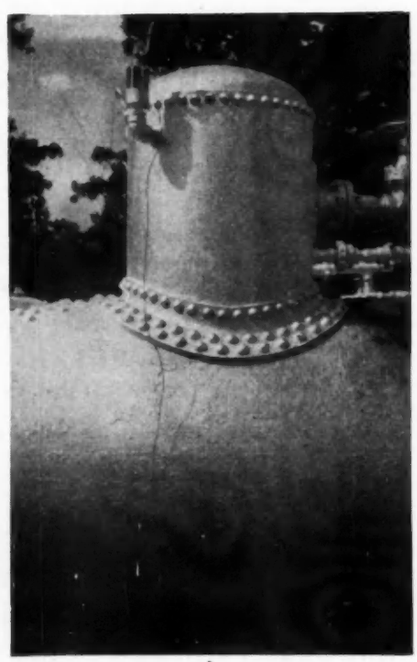
In this manner, setting-up time is cut down as no attention need be paid to the rebuilding or realigning of the supports until the entire front is permanently spotted, after which it is but a few minutes work to readjust the cross members to the desired height.

8. SAFETY

Blow-Off Valve Has Testing Wire

TO facilitate periodic tests of boiler safety valves, one drilling company attaches a short wire, terminating in a short pipe handle, to each safety valve, and requires each fireman, at the beginning of his tour of duty, to test each valve by blowing it with the hand release.

Since in normal operation only the valve set at the lower pressure blows when excess steam is generated, this simple precaution insures free working of both valves, and prevents rust or scale sealing the seat not normally scoured by the steam in routine operations.



This convenient wire encourages frequent test of the boiler safety valve.

HIGHLIGHTS IN THE WEEK'S NEWS

Allowables

Oklahoma to Stay at August Figure; Phillips Agrees

W. J. Armstrong, chief conservation officer of the Oklahoma Corporation Commission, will word the September 9 proration order same as August quota, or 390,000 barrels daily, 7000 barrels daily under the United States Bureau of Mines estimate of market demand. Governor Leon C. Phillips has indicated his approval of this figure.

The Interstate Oil Compact Commission of which the governor is chairman, had recommended that member states cut 5 percent below the bureau's estimate for their states.

"I am anxious that Oklahoma keep faith with the other states," Phillips said. "At the same time I do not feel that the state can go against the clear weight of the evidence.

"I think the picture has changed since the compact made its recommendation. We are sure the Bureau of Mines estimate of Illinois production at the time the compact met was in error, and there has been an increased demand for oil due to war conditions.

"The corporation commission has got to act on the evidence and I am not going to 'boo' the evidence."

Kansas Figure 300 Barrels Over Mines Estimate

The Kansas Corporation Commission last week set the September allowable at 190,000 barrels daily, 300 barrels over the United States Bureau of Mines' estimate of market demand. Prorated areas were assigned 143,000 barrels and unprorated pools 43,000 barrels, leaving 4000 barrels for new wells.

Associations

IPAA Group to Study Producers' Problems

The Independent Petroleum Association of America last week announced appointment of a committee of twenty-nine to conduct an exhaustive study of problems that currently affect the oil producing industry. The committee, headed by W. A. Moncrief, Fort Worth, was authorized by the association's directorate July 25.

The committee will study imports, the Interstate Oil Compact and conservation practices of the states, and the Temporary National Economic Committee hearings, and present a report on the subjects to the IPAA membership at the annual meeting, scheduled for October 16-18 at Dallas. Subcommittees will do the fact-finding work on each subject.

Members of the committee, in addition to Moncrief, are: L. L. Aubert, general manager, Bankline Oil Company, Los Angeles; T. F. Birmingham, president, Margay Oil Corporation, Tulsa; H. C. Bretschneider, Denver; J. S. Bridwell, Bridwell Oil Company, Wichita Falls; Wirt Franklin, Franklin Petroleum Corporation, Ardmore, Oklahoma; Jake Hamon, Dallas; Winston P. Henry, president, Putnam Oil Company, Houston; Dana Hogan, president, Hogan Petroleum Company, Los Angeles; C. A. Johnson, president, Holly Oil Company, Los Angeles; D. R. Lauck, Lauck & Moncrief, Wichita; C. A. Lester, president, Lester & Duffield, Inc., Dallas; John M. Lovejoy, president, Seaboard Oil Company of Delaware, New York; C. H. Lyons, Shreveport; J. K. Mahony, Mahony & Yokum, El Dorado; E. H. Moore, E. H. Moore, Inc., Tulsa; E. C. Moriarty, McPherson Drilling Company, Wichita; Ralph Pryor, president, Pryor & Lockhart, Inc., Wichita; Chas. F. Roeser, president, Roeser & Pendleton, Inc., Fort Worth; Leon F. Russ, Southwood Oil Company, Inc., Dallas; Carl H. Schwyn, president, Security Oil Company, Cygnet, Ohio; C. A. Smith, Jr., Smith Petroleum Corporation, Grand Rapids, Michigan; H. M. Stalcup, vice president, Skelly Oil Company, Tulsa; Leigh Taliaferro, San Antonio; A. R. Thompson, vice president, Independent Oil Producers Association of Illinois, Mattoon; Roy J. Turner, Harper & Turner Oil Company, Oklahoma City; Earl D. Wallace, The Wiser Oil Company, Lexington, Kentucky; Van S. Welch, Flynn, Welch & Yates, Inc., Artesia, New Mexico, and Ralph T. Zook, president, The Sloan & Zook Company, Bradford, Pennsylvania.

W. A. MONCRIEF

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Washington

Brown Says Mexican Imports Anti-Dumping Law Violation

Charging that Mexican oil is being imported into the United States in direct violation of the Anti-Dumping Act, Russell B. Brown, general counsel of the Independent Petroleum Association, has urged Secretary of the Treasury Morgenthau to make an investigation of the situation with a view to taking remedial measures.

In a letter to the secretary, Brown called specific attention to the Sinclair Refining Company and Eastern States Petroleum Company contracts with the Mexican government, under which large quantities of oil are to be imported at low prices.

"One company alone has a contract with the Mexican government for 20,000,000 barrels of crude petroleum to be of not less than 30 gravity and to be delivered on tankers at the Mexican port of Tampico or Tuxpen on the Gulf of Mexico," he said, referring to the Sinclair Refining Company contract. "Five million barrels of this crude are to be delivered each year. The price of the first 5,000,000 barrels is to be 60 cents per barrel, United States currency, delivered on tanker."

"This oil, he pointed out, "can enter our domestic markets at a cost between 30 and 40 cents a barrel below the cost of the domestic product or approximately half the domestic cost in the same market after payment of the excise tax."

Unverified reports of the Eastern States Petroleum Company contract, Brown continued, indicate that it is to take 10,000 barrels of Poza Rica crude per day, which is claimed to come from government wells and not to be expropriated oil. It has also been reported, he said, that the company has entered into a new contract under which it is to process Mexican crude oil at the rate of 20,000,000 barrels a year.

"As a result of the over supply of

petroleum to which Mexican imports have been a contributing factor, permitted production of domestic petroleum under state conservation laws has been reduced," Secretary Morgenthau was told.

"If confiscated oil may be dumped in this country that oil or its products can ignore questions of value or of overhead costs. It can undersell any petroleum now upon the domestic market.

"That such importations do affect the domestic price is indicated by the fact that upon the announcement of the Sinclair contract with the Mexican government the price of crude in some of the principal fields in this country was reduced. While that price has been restored for the present the restoration was due to other causes. Meanwhile this low cost oil which is being dumped by the importers is taking the domestic markets in increasing quantities."

Navy Gets 79-Cent Bid On Fuel Oil Contract

Opening of bids by the Navy Department at Washington last week for the supply of 500,000 barrels of Navy fuel oil brought a surprise in the form of a quotation of 79 cents per barrel from Maritime Oil Company, Houston. This bid was 8.4 cents under the 87.4 cents a barrel quoted by Sinclair Refining Company and 10 cents under the 89-cent bid of Standard Oil Company of New Jersey.

Requirements of the government are that all supplies be substantially of domestic production, and the Sinclair bid had an explanation attached that if given the contract it would use 15 percent or less of Mexican oil, which it is now running at its Houston refinery, because of the impossibility of segregating the Mexican oil from the domestic product.

World-Wide Developments

U. S. Now Major Buyer of Mexican Petroleum Exports

Mexican petroleum exports during July totaled 2,059,000 barrels, of which 1,862,000 barrels moved to the United States.

Other takers of Mexican oil for the month were: Japan, 88,000 barrels; Portugal, 44,000; Chile, 28,000. Bunkers totaled 37,000 barrels.

Eastern States Petroleum Company, Houston, received 823,000 barrels during the month, by far the largest volume. Sinclair was second with 530,000 barrels. W. R. Davis, a major buyer prior to Germany's removal from the Mexican market by reason of the war, is again buying heavily, his total for July being 242,000 barrels forwarded to New Orleans. First National moved 131,000 barrels for the month to Brooklyn, the Empire took 79,000 barrels and Associated Minerals and Metals 57,000 barrels.

As indicated by the shipments cited, Mexico is shown as being largely dependent at present on the U. S. market for export outlet.

Italian Shipments Stopped

Italy, for the first time since October, 1938, moved no Mexican petroleum during July. In May, shipments to Italy totaled 352,000 barrels, in April 569,000 and in March 697,000.

Despite the dwindling in number of export outlets, the export volume during July was 636,000 barrels more than during June when exports totaled 1,695,000 barrels. Value of July exports was placed at $1,400,000.

July figures brought the total of Mexican crude and refined exports since the government took over the industry by expropriation March 18, 1938, to 40,750,000 barrels, valued at $35,-100,000.

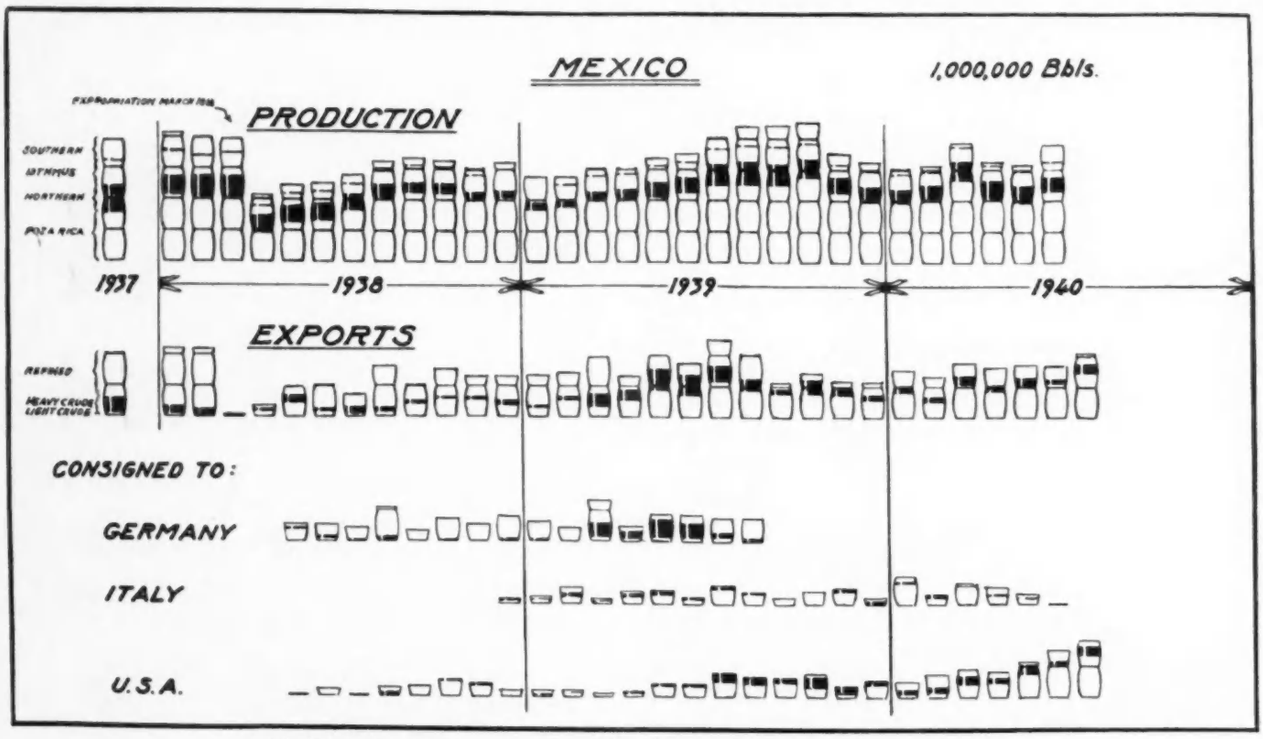
The total of exports during government operation in 1938 reached 10,000,-000 barrels, valued at a little more than $10,000,000. During 1939 a total of nearly 19,000,000 barrels, valued at $15,-350,000, was exported. For the first seven months of this year, the exports have totaled 11,750,000 barrels, valued at $9,750,000.

Exports of crude oil from March 18, 1938, through July of this year, were divided as follows: Poza Rica, 16,-265,000 barrels; Panuco, 6,875,000 barrels; Southern, 545,000 barrels. Fuel oil exports totaled 4,200,000 barrels, gasoline 3,193,000 barrels, gas oil 5,150,000 barrels.

Although his shipments from here are moving for the most part to New Orleans, W. R. Davis is reported taking some oil from Eastern States at Houston and shipping it to Point Isabel, Brownsville port, where he has storage and refining facilities. During May, Davis is understood to have shipped 24,000 barrels from Houston to Point Isabel.

A growing amount of refined products is being moved from the Eastern States refinery at Houston back to Tampico where it is mixed as synth oil and pumped to Mexico City refinery of Petroleos Mexicanos for reseparation and distribution. To date 500,000 barrels have been returned to Mexico for such handling.

Figures on deliveries to United States ports from Mexico and from the Eastern States refinery at Houston, not including deliveries from Mexico to East-



Production and export trend of Mexican Petroleum since expropriation

ern States refinery, show that during May the movement of oil owned by indepedents (their own oil) totaled 204,000 barrels while government oil, including that from properties held prior to expropriation and from expropriated properties, totaled 920,000 barrels. This total of 1,124,000 barrels delivered to United States ports was from a total of 1,715,000 barrels exported during the month.

Sinclair has been taking heavily since May. For that month the total was 302,000 barrels, for June 530,000 and for July 530,000 barrels.

Shipments to Eastern States during July, 823,000 barrels, was nearly twice the amount shipped during June when the total was 481,000 barrels.

Mexican oil production since March 18, 1938, through June of this year totaled 91,250,000 barrels. Of this total, 75,000,000 barrels came from expropriated properties, 5,000,000 barrels from the property of independents and the remainder, 11,000,000 barrels, from property held by the government prior to expropriation.

Court Orders Companies to Transfer Title to Properties

A court order signed August 31 by Judge Ponciano Hernandez, of the First Civil Court of Mexico City, ordered oil companies to appear within 15 days to sign a transfer of title to their expropriated properties in Mexico to the nation. Should the companies fail to appear, the court will sign the order.

The order also recognized an evaluation figure of $35,400,000 for the producing and processing properties of the foreign companies.

As the companies, with the exception of Consolidated Oil Corporation (Sinclair), never have accepted legality of the expropriation of their properties as a result of inability to meet workers' demands which the government now finds itself unable to meet, they are expected to fight the court order.

Approve Sinclair Settlement

The extraordinary session of Mexico's thirty-seventh congress August 30 approved President Cardenas' 38,500,000-peso settlement with Sinclair oil interests for their expropriated oil properties and equipment.

Report Bootlegging Gasoline Ration Tickets at High Prices

Reports from Tokyo tell of bootlegging gasoline ration tickets at high prices. Gasoline and other industrial commodities have been on ration in Japan for some months. The government now is experimenting with the public's reaction to the rationing of sugar and matches.

Restrict Motor Travel to Conserve Gasoline Supply

Dr. Pini, German advisor in traffic matters in Holland, announced, effective September 1, a 10 percent reduction in the number of buses, and compulsory withdrawal from use of taxis and private automobiles consuming more than 15 liters of gasoline per 100 kilometers of travel.

The order was issued because of rapid exhaustion of the Netherlands gasoline stock. It meant that many of the automobile licenses issued on July 1 were recalled September 1.

Dr. Pini announced a combine would be organized in Holland for freight traffic to avoid empty trips by trucks. He had previously banned heavy motorcycles from the roads.

Regulations passed to reduce concumption of gasoline will last for the duration of the war, Dr. Pini expects.

British Claim Successful Attacks on Oil Objectives

Production sources of 40 percent of Germany's 2,500,000-ton synthetic oil output has been severely damaged by bombing during the past 60 days, according to claims of the Royal Air Force voiced in a recent London dispatch. Of these sources, that at Leuna, which has an annual capacity of 400,000 tons and is the largest synthetic plant in Germany, has been successfully attacked several times, it is claimed.

The Royal Air Force also claims to have repeatedly attacked refineries in Western Germany and around Hamburg with an aggregate of 2,500,000 tons capacity annually.

Taxation

Small Producers Plight Under Excess Profits Tax Is Studied

Members of the Senate finance committee are struggling with the problem of the small oil producers under the excess profits tax bill and are attempting to write provisions which will not subject to tax all of the profits they may make.

Representations were made to the committee that the small producer operates with borrowed capital and therefore has no "invested capital," as the term is used in the bill. At the same time, it was pointed out, he may bring in one or more dry holes before striking oil, so that he has no such thing as a "normal" profit. As a result, it was said, it is quite possible that all profits which he might make would be considered as excess profits subject to the tax.

In the event the committee finds it impossible to write provisions which would take care of the situation, it was suggested a board of review be set up to pass upon such cases individually and that there be provided in the measure a provision authorizing the commissioner of internal revenue to accept the findings of the board.

Proration Matters Before Bar Association Meeting

Two discussions on proration matters have been scheduled for the annual meeting of the American Bar Association, which opens in Philadelphia September 9.

Roy W. Johns, general counsel for The Atlantic Refining Company, Philadelphia, will discuss "Some Aspects of the Effect of the Exercise of the Police Power on the Correlative Rights in a Common Reservoir," and Walter L. Summers, of the University of Illinois, will speak on "Does the Regulation of Oil Production Require the Denial of Due Process and the Equal Protection of the Laws?"

Pipe Lines

National Refining Building 54-Mile Kansas Extension

National Refining Company has started construction on a 54-mile extension to its pipe line system in Eastern Kansas, extending across Chautauqua County into eastern Cowley County. The artery of 8-inch pipe will connect to the company's main line in Cowley County which runs south into Osage County and thence east through Oklahoma to a point northeast of Bartlesville where it crosses the line into Kansas again, terminating at the company's Coffeeville refinery. Origin of the line is the Hooser Station in southeastern Cowley County. Cost of the propect is estimated at $400,000.

K-M-A Pipe Line Outlets

Gulf Refining Company placed in operation September 5 a supplemental crude line from the K-M-A field to its Burkburnett main-line station. The carrier consists of 18½ miles of 6-inch pipe, with a rated capacity of 10,000 barrels daily. Heretofore, K-M-A crude has been routed along with Archer County runs via Electra station to Burkburnett. About 45 miles of 4-inch loops in the latter system will be salvaged.

Stanolind Pipe Line Company is scheduled to complete its K-M-A field outlet early this week, and will handle the output of 225 wells for the account of Stanolind Crude Oil Purchasing Company. The field gathering system, embracing about 35 miles of pipe, is complete, and an 11-mile 6-inch discharge line from the field station to a point near Electra is also ready for service.

Jury Awards Damages in Texas Common Purchaser Suit

Judgment in the first suit involving the Texas pipe line common-purchaser law was handed down in district court at Austin last week. Agey Production Company was awarded $5800 against American-Liberty Pipe Line Company, representing damages of $100 for each day one of its wells was off the line. The company charged that the pipe line refused to purchase oil from its well while buying from other producers in the same area of the East Texas field. The suit was filed in 1938.

California University Offers Two Petroleum Courses

Of interest to oil engineers and geology students are two new courses which the University of California Extension Division will open on September 17 and September 26 at its Los Angeles classroom center, 813 South Hill Street.

The first course is in Petroleum Technology, and will feature a study of the history, origin, geology and chemistry of petroleum. Paul F. Devine is the instructor. The second course, opening September 26 at 7 p. m., is on Oil Production Engineering, with Glenn H. Bowlus as instructor.

Markets for Both Crude And Refined Oils Firm

The industry's markets have continued steady, from well to retail outlet, and only minor changes in prices have occurred within the past week.

The crude markets of the Middle West and the Mid-Continent remain firm, with Illinois overproduction eliminated through natural decline and with the states of the Mid-Continent under comparatively strict allowables.

Markets for refined products are generally good, as interest in light fuel oils has developed, with cooler weather not far ahead; while the Labor Day holiday left many jobbers in need of replacement gasoline.

The gasoline market in the Middle West has been strengthened by the diminution of available supplies from plants processing Illinois crude.

Heavy fuel oils also are in good demand, as industrial requirements in connection with the national defense program are expanding, while stocks are moderate in relation to the prevailing and prospective market requirements.

Tractor fuel was reported active in the Middle Western market, under the influence of buying for early fall plowing in the Northwest.

The markets of the Appalachain region have been featured lately by better demand for wax. However, no pickup in demand for lubricating oil has occurred, and the lubricant situation has continued to affect unfavorably the market for Pennsylvania-grade crude.

In Michigan the markets for refined products as well as crude oil are firm, having been strengthened by the Illinois situation besides by the tightness of supplies of Michigan crudes.

Bloomingdale-Columbia grade crude oil, in Michigan, produced at the rate of 110,000 barrels a month and coming from 1200-foot Traverse wells in Van Buren County, was increased 4 cents, effective September 3, to $1.12 a barrel. This is 6 cents less than the posted price in Allegan and Kent fields, the two major shallow producing districts, but conforms with the top price for Michigan basin crudes. The 4-cent Bloomingdale advance was accepted as an adjusting raise rather than the start of another general upward movement over the state. Most fields advanced 10 cents on August 24, but the raise at that time had exempted the Bloomingdale area.

East Bryson Hearing

Dallas Royalty Company and Napoleonic Oil Company have requested straight acreage proration for the East Bryson field, Jack County. At a hearing before the Texas Railroad Commission last week, operators said they had a 50-acre lease, and asked that a 10-acre tolerance be granted for proration purposes, eliminating the necessity of drilling a third well on the tract. One well to 20 acres is standard for the field.

Gasoline Withdrawal Small As Refinery Runs Expanded

Although crude oil production is being held below market demand, refinery operations have been expanded to such extent as to require taking crude from storage. The large runs probably reflect efforts to further build up stocks of light fuel oils, but they also have entailed manufacture of unwanted gasoline. Consequently, the seasonal wtihdrawal from gasoline storage has been reduced to subnormal volume, and the seriousness of the existing gasoline surplus has been increased.

These developments were reflected in the latest statistics of the industry, covering the week ended August 31, as reported by the American Petroleum Institute.

Production and Runs

United States crude oil production for the period averaged 3,501,350 barrels daily, several thousands of barrels less than in the previous week. The output was 155,000 barrels under market demand as estimated by the Bureau of Mines for August.

Runs to stills were stepped up sharply, from 3,485,000 to 3,575,000 barrels daily. The new rate was 3 percent above the daily average runs of 3,472,000 barrels during August of last year.

Gasoline Situation

Production of gasoline totaled 11,697,000 barrels in the week ended August 31, an increase of 17,000 barrels over the output in the preceding 7 days. The gasoline production was greater than at the corresponding time last year.

Gasoline stocks came down only 377,000 barrels in the week of August 31, having decreased to 85,393,000 barrels. That quantity was 13,000,000 barrels, or 18.1 percent in excess of the amount held at the end of August last year. Apparently, the gasoline inventory will be above 80,000,000 barrels on September 30, at the end of the heavy consuming season, although it is calculated that the industry could operate satisfactorily at that time with only 65,000,000 barrels on hand. With demand lighter in the late fall and winter, the industry necessarily will be producing more gasoline than the markets will be absorbing, because of large needs for heating oil; and there is danger that any excess of gasoline on hand September 30 will have to be carried through the winter and piled as a surplus on the essential working stocks at the beginning of next spring.

There is a serious threat, in other words, that the industry may experience next year a repetition of the unsatisfactory gasoline situation that has prevailed in 1940, with seriously excessive stocks preventing firm markets or fair prices.

Fuel Oil Stocks

On guard against a scarcity of heating oil such as that which was threatened last winter, the industry has continued to build up the inventory of gas oil and distillate fuel. Stocks of those light fuel oils were increased about 800,000 barrels more in the week of August 31, having been raised to 44,766,000 barrels. That was 7,000,000 barrels, or 19 percent, more than the 37,626,000 barrels on hand at the end of August last year. It has been estimated

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1938:						
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
December 10	3,245,100	3,150,000	[6]269,509,000	68,687,000	32,068,000	118,711,000
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[6]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
September 30	3,658,200	3,560,000	233,023,000	71,168,000	38,081,000	115,466,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[2]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	39,562,000	114,786,000
November 25	3,818,100	3,510,000	231,811,000	75,595,000	38,527,000	112,106,000
December 30	3,545,000	3,445,000	237,742,000	80,985,000	34,184,000	106,680,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[3]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 3	3,493,550	3,510,000	264,297,000	89,492,000	40,448,000	106,919,000
August 10	3,475,300	3,435,000	263,607,000	88,115,000	41,377,000	107,601,000
August 17	3,518,750	4,510,000	263,425,000	86,441,000	42,869,000	107,935,000
August 24	3,508,000	3,485,000	263,802,000	85,770,000	43,931,000	108,021,000
August 31, 1940	3,501,350	3,575,000	.....	85,393,000	44,766,000	108,774,000
August 31, 1939	[9]2,283,200	[8]3,472,000	[4]246,982,000	72,335,000	37,626,000	115,614,000
Change in past year	[9]+53.4%	+3.0%	+6.8%	+18.1%	+19.0%	—5.9%

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, August 26, 1939.
[5] Lowest since October, 1922, due to shutdown of six Mid-Continent States. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] August, 1939 daily average. [9] Mid-Continent production partially shut in by State orders in latter half of August, 1939.

that 48,000,000 barrels would be sufficient upon entering the large consuming season September 30, and a continuation of additions at the same rate as in the August 31 week would raise the stocks exactly to that level.

Additions to stocks of heavy fuel oils also have continued. The increment in the week ended August 31 was 750,000 barrels. But the 108,774,000 barrels on hand August 31 represented 6 percent less than the 115,614,000 barrels in storage a year previously.

Stocks of crude oil now are greater than a year ago, as storage was depleted at this time last year through the half-month shutdowns of all fields in the Mid-Continent states. The 263,802,000 barrels held August 24 compared with 246,982,000 barrels at the corresponding time last year.

Texas Commission Studies Rules for Coastal Fields

Special operating rules for wells drilled in coastal waters and leases adjacent to them were discussed at a hearing before the Texas Railroad Commission last week, called at the request of State Land Commissioner Bascom Giles.

Giles said that investigation of wells on state leases in the Gulf Coast indicated they were not sufficiently protected from storm hazards, and that there was insufficient protection from driftwood for Christmas trees on some of the wells. He said he had requested the hearing in order that proper rules might be applied, and needless expense avoided.

The East White Point field was cited as an example of conditions concerning which Giles complained. Several wells there, located below the bluff, were insufficiently protected, he said, maintaining that some sort of barricade should be erected around the well head and storm chokes applied.

Operators presented testimony to show that conditions vary from field to field, and that uniform rules would be unsatisfactory. They urged the commission to hold hearings on each field and prepare rules that would apply in local areas.

Wholesale Prices of Refined Products

REFINED GASOLINE (Cents a gal.)	Range	Late Last Week	Changes from week Before	
Oklahoma Refineries:				
60 Octane and under	3⅞	4¼	...	...
63-66 Octane	4¼	4¾	...	...
72-74 Octane	4⅝	5¼	...	...
Mid-Western Tank Car:				
60 Octane and under	3⅞	4¼	...	...
63-66 Octane	4¼	4¾	...	...
72-74 Octane	4⅝	5¼	...	...
New York Harbor:				
70 Octane and under	5½	5¾	...	...
72-74 Octane	5¼	6½	...	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	1¾	1¾	...	...
F.O.B. Breckenridge, Texas	1½	1½	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	3⅞	4¼	...	...
42-44 water white	4	4⅝	...	...
Mid-Western Tank Car:				
41-43 water white	3⅞	4¼	...	...
42-44 water white	4	4⅝	...	...
New York Harbor	4¾	4¾	...	...
RANGE OIL				
At Oklahoma Refineries	3½	3⅞	...	...
In Mid-Western Market, Group 3 basis	3½	3⅞	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3¼	3½	...	...
No. 3	3⅛	3⅜	...	...
Mid-Western Tank Car:				
No. 1 white	3⅜	3¾	...	...
No. 3	3⅛	3⅜	...	...
New York Harbor:				
No. 1	4¾	4¾	...	...
No. 3	4⅛	4⅛	...	...

HEAVY FUEL OILS (Per Bbl.)	Range	Late Last Week	Changes from week Before	
Oklahoma Refineries:				
No. 6	$0.55	$0.55	...	...
Mid-Western Tank Car:				
No. 5	.75	.75	...	...
No. 6	.50	.55	...	...
New York Harbor:				
No. 5	1.45	1.70	...	...
No. 6	1.15	1.25	...	...
BUNKER C FUEL OIL (Per barrel, ships bunkers)				
Gulf Coast	$ .80	$ .90	...	...
New York Harbor	1.15	1.25	...	...
DIESEL OIL (Per barrel, ships bunkers)				
Gulf Coast	$1.50	$1.75	...	+.05
New York Harbor	1.70	1.70	...	...
Los Angeles Basin, 27 gravity	1.20	1.40	...	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210°, 10-25 pour test	13	15½	...	...
Neutral oil, pale No. 3 color, 150 viscosity at 100°, 0-10 pour test	8	10¼	...	...
Western Pennsylvania:				
Bright stock, 145-166 viscosity, at 210°, 25 pour test	12	13	...	...
Neutral Oil No. 3 color, 150 viscosity at 70°, 25 pour test	19	19	...	...

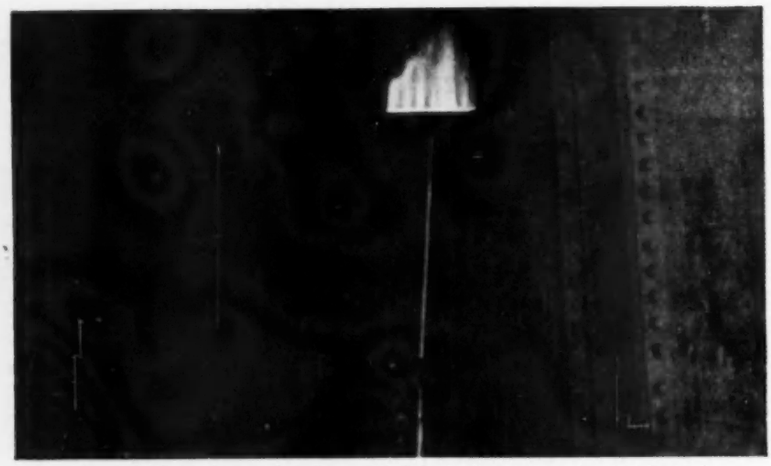
United States Crude Oil Production Up 131,925 Barrels

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Sept.)	State Allowable in Sept.	BARRELS DAILY FOR WEEK ENDED Aug. 31	Sept. 7
TEXAS—				
Texas Panhandle	.....	.....	65,125	76,150
North Texas	.....	.....	94,950	95,975
West Central Texas	.....	.....	28,750	29,500
West Texas	.....	.....	195,550	221,100
East Central Texas	.....	.....	72,050	78,375
East Texas Field	.....	.....	374,850	374,850
South Texas	.....	.....	182,950	210,800
Texas Gulf Coast	.....	.....	189,425	210,250
Total Texas	**1,320,300**	**1,298,528***	**1,203,650**	**1,297,000**
CALIFORNIA—				
Long Beach	.....	.....	41,500	42,700
Midway-Sunset	.....	.....	40,200	57,000
Kettleman Hills	.....	.....	47,300	47,000
Wilmington	.....	.....	85,100	84,600
Others	.....	.....	378,500	398,900
Total California	**593,000**	**571,000†**	**592,600**	**630,200**
OKLAHOMA—				
Oklahoma City	.....	.....	104,900	102,650
Seminole Area	.....	.....	107,200	105,500
Others	.....	.....	202,900	209,325
Total Oklahoma	**397,000**	**390,000**	**415,000**	**417,475**
ILLINOIS				
Salem	.....	.....	162,100	166,200
Louden	.....	.....	76,500	73,500
Centralia	.....	.....	30,100	27,000
Other New Pools	.....	.....	95,000	96,500
Old Pools	.....	.....	10,700	10,700
Total Illinois	**430,000**	.....	**374,400**	**373,900**

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Sept.)	State Allowable in Sept.	BARRELS DAILY FOR WEEK ENDED Aug. 31	Sept. 7
LOUISIANA—				
North Louisiana	.....	59,421	64,550	64,650
South Louisiana	.....	215,433	210,275	213,125
Total Louisiana	**274,700**	**274,854**	**274,825**	**277,775**
KANSAS	**170,000**	**190,000**	**176,900**	**165,750**
NEW MEXICO	**105,300**	**100,300**	**100,950**	**100,800**
EASTERN STATES—				
Pennsylvania Grade	70,300	.....	70,550	69,900
Others, Eastern	21,600	.....	19,900	20,000
Total Eastern States	**91,900**	.....	**90,450**	**89,900**
MOUNTAIN STATES—				
Wyoming	75,300	.....	74,500	75,800
Montana	17,700	.....	17,400	17,400
Colorado	4,000	.....	3,500	3,450
Total Mountain States	**97,000**	.....	**95,400**	**96,650**
MICHIGAN	**55,700**	**52,000§**	**53,500**	**53,500**
ARKANSAS	**69,700**	**75,105**	**74,500**	**73,900**
INDIANA	**9,300**	.....	**14,950**	**16,500**
MISSISSIPPI	**9,700**	.....	**22,500**	**28,300**
NEBRASKA	.....	.....	**350**	**250**
‡Total 8 Prorated States	**2,986,400**	**2,932,487**	**2,891,925**	**3,016,400**
Total United States	**3,624,300**	.....	**3,489,975**	**3,621,900**

* Net daily average for 30 days as of September 1, considering general shutdowns on September 1, 2, 8, 14, 15, 21, 22, 29, 30.
† Recommendation of Central Committee of California Oil Producers.
§ Department of Conservation estimate of actual production.
‡ Texas, California, Oklahoma, Louisiana, Kansas, Arkansas, Michigan, New Mexico.



Oxyacetylene flame-cleaning and dehydrating new structural steel prior to primer painting.

Oxyacetylene paint-burning and surface-conditioning steel structures prior to repainting.

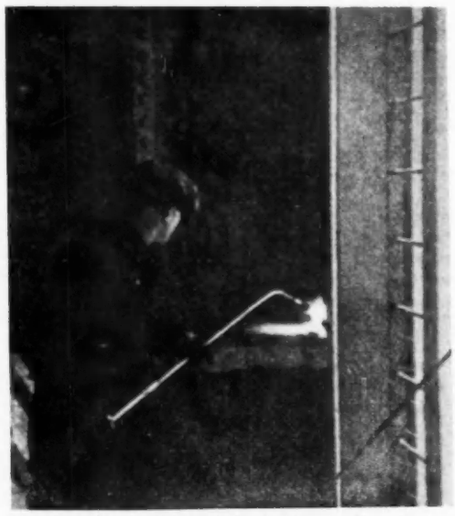
INCREASE THE LIFE

of old Steel Structures

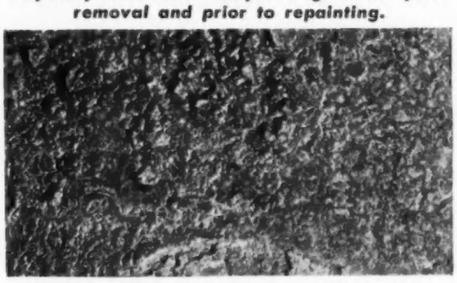
Moisture, the enemy of steel, must be removed from the surface prior to the application of paint since there is danger of its progressive action causing the gradual loosening of otherwise tight mill scale. The loosening of such scale may be the basic cause of primer paint coat failure and the exposure of the steel to progressive oxidation.

Airco oxyacetylene flame-cleaning and dehydrating, accepted by bridge engineers as an ideal method of steel surface conditioning of structural steel prior to primer painting of new steel and repainting of existing structures, is offered to the oil industry as a means to combat paint loss and to lower maintenance cost.* Write for your copy of "Flame Cleaning and Dehydrating Structural Steel The Airco Way."

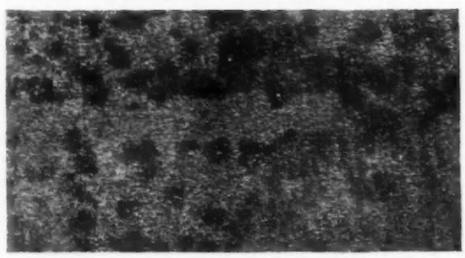
*The oxyacetylene flame-cleaning and dehydrating process, a flame process, is not recommended for application on holders that have contained combustible liquids or gases.



Oxyacetylene flame-dehydrating after paint removal and prior to repainting.



Typical surface condition of steel surface resulting from loss of paint and progressive corrosion.



Surface fully conditioned and oxyacetylene flame-dehydrated prior to repainting.

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Illinois - Indiana

Wildcats in Franklin and Jasper Counties Indicate Pools

A Franklin County wildcat 11 miles from production began flowing natural to cause the biggest furor in Illinois oil circles since the hey-dey of the Devonian drilling campaign in the Lake Centralia-Salem field. The probable pool opener is Manley Oil Company's C. F. Downan 1, SW 26-7s-4e, being completed in McClosky lime at 3103-16 feet. Two 1000-barrel storage tanks were being erected and the well had not been gauged, but it flowed into pits. Operators estimated production at 800 barrels daily. Nearest production is south of McLeansboro in Hamilton County, 11 miles northeast of the Manley discovery.

In Jasper County, casing was cemented at a wildcat in which saturation was found in three formations. It is Connor-Arnold et al's Swick 1, SW SW NE 17-6n-10e, 4 miles southeast of Newton. Operators reported 17 feet of Aux Vases pay cored between 2715-48 feet, that pay was topped in the Rosiclare at 2760 feet, and that 10 feet of excellent McClosky lime saturation was recovered in a core at 2782-2795 feet. Total depth is 2819½ feet. Casing was set to the top of the McClosky pay and the well was to be drilled in late in the week. The site is a mile from a producer drilled by Pure Oil Company some time ago, but never offset. Successful completion of Swick 1 will require three offsets by Pure Oil Company.

In Clinton County, 2 miles west of the Centralia field, Sistler et al's Phoenix 1, NW NW SW 14-1n-1w, was still not a completion. A prospective pool opener in a sand formation tentatively identified as the Benoist at 1303-08 feet, Phoenix 1 was to be given a 4-quart shot, but the cap exploded slightly below 900 feet and operators were seeking to determine whether casing had been damaged. Operators have started a second test 1¼ miles southwest of Phoenix 1, H. H. Boreup 1, SW SW NW 22-1n-1w, which was drilling below 200 feet.

In the Centralia pool, a Trenton test, Allen Borton's Storer 1, NE NE 13-1n-1w, was swabbing after a show of gas was found in the Silurian just below 3700 feet. The well was making water and gas. Only Silurian production ever uncovered in Illinois was a light gas well completed in Pike County years ago which since has been abandoned. The formation underlies the Devonian and Devonian-Silurian, and is above the Trenton.

Six miles north of Salem in Marion County, Kingwood Oil Company's Spencer 1, NW NW SW 19-3n-3e, a wildcat, was drilling in hard Devonian lime at 3980 feet. One showing of oil was found in Salem lime at 2768-71 feet. Another Marion wildcat, Ponting et al's Rohner 1, 3 miles north of Centralia, SW NW NE 31-2n-1e, was shut down on orders at 3197 feet after a squeeze job in Devonian failed to shut out water. Casing was gun-perforated in Salem lime at 2200 feet, but water also encroached at that depth. Three miles southeast of Centralia, Johnson et al's Johnson 2, NE 32-1n-1e, a wildcat, was drilling at 1600 feet.

In the Lake Centralia-Salem pool, Marion County, Illinois' most prolific producing area, there were still 92 operations despite 27 months of intensive drilling. Most of the current tests are holdings of The Texas Company, which is completing about 50 percent of its wells in McClosky and Salem limes, and the balance in the Devonian.

The new Hoodville field in Hamilton County appears to be one of the best discoveries of the year. Most recent completion there, exchange Oil Company's Friel 2, NW SE 34-5s-6e, swabbed 692 barrels of oil in 24 hours from Benoist at 2950-69 feet. The field was opened by Kingwood Oil Company.

First Trenton test in the Sandoval field, Marion County, B. E. Martin's Robinson 1, SE SW 4-2n-1e, was drilling at 3235 feet with rotary tools. It is being deepened from the Devonian at 2984 feet. Contract calls for 1275 feet of drilling, which should put the test well in the Trenton formation.

A Jefferson County wildcat, Tex Harvey Oil Company's Jefferson Coal Corp. 1, CW½ SE SW 16-4s-2e, was abandoned in McClosky lime. Glen Dean was topped at 2168 feet, and Cypress at 2375 feet.

In the Irvington field of Washington County, Gulf Refining Company has started its third Devonian test, Stanton 5, in Section 22-1s-1w.

Twenty-Mile Chain of Oil Pools Extends Along Wabash

Tests drilling and being completed last week in Western Posey County, Indiana, and Eastern White County, Illinois, will complete a 20-mile chain of oil fields stretching in a general northeast-southwest direction from the town of Maud, in Wabash County, Illinois, through Posey and Gibson counties in Indiana to the Calvin field of White County, Illinois.

With minor exceptions due to local conditions, the entire area, from one to three miles wide, is producing. Since the first link in the chain was forged in December, 1938, with the Griffin field discovery, wells have been drilled to 11 producing horizons. They are Bridgeport, Palestine, Clore, Waltersburg, Tar Springs, Hardinsburg, Cypress, Benoist, Aux Vases and McClosky.

While there have been shows in both the St. Louis and Salem, neither of these horizons has paid off along the Griffin trend. However, east of the Griffin field near Owensville, in Gibson County, Art Braden's Simpson 1 is believed producing from the St. Louis.

After the Griffin field discovery, operations extended in all directions and the northeast-southwest trend began to take form. As development extended northward into Wabash County, Illinois, new sands were discovered that had not yet paid off in the immediate Griffin area.

Then came the spectacular boom at Keensburg during the early summer of 1939. Keensburg, for many months, became the northeastern limit of the trend. But, this too, was revised recently with the Maud field discovery, still further to the northeast.

Early in the Griffin field development, a few White County wildcats south of Grayville, Illinois, failed to show promise, and halted further tests to the southwest of Griffin for many months.

The southwest edge of the trend then was believed to be no farther than the northern edge of Western Posey County, Indiana. But a few months ago, when the Calvin field discovery was completed in the Benoist, 4 miles south of Grayville, new tests got under way immediately.

Areas Linked Last Week

Last week, just east of the Calvin production, and across the Wabash River into Posey County, Indiana, W. C. McBride brought in the Ed Swander 2 for an Aux Vases producer, definitely linking the two areas.

One field, however, still is a debatable topic. Ribeyre Island, in Western Posey County, where Superior Oil Company has about 30 producers, mostly from the Waltersburg and McClosky, is several miles south of the general northeast-southwest trend. Some geologists are of the opinion it is on a fold or another parallel ridge.

Geologists describe this Griffin geological trend as a subsurface mountain hogback, the deepest part of which is near the center of White County, Illinois.

A glance at a Wabash Valley map would give the impression that the large Storms field, south of Carmi, in White County, Illinois, also is a part of the trend, since, geographically, it seems to fall in line. But the Storms field, along with the Iron pool and the Stokes field, also in White County, are believed to be on the other side of the hog-back as it rises from the center, or the deepest part.

How much further production will extend along this 20-mile chain must still be determined.

Griffin Receives New Oil Horizon and Extension

Continental Oil Company's Bozeman Land Company 11, NE SW NW 26-3s-14w, was completed in the Benoist sand at 2641-65 feet, initialing 72 barrels a day on pump, to add a new producing horizon to the Griffin field area of Gibson County, Indiana.

W. C. McBride, Inc.'s Ed Swander 2, NW NE NE 4-4s-14w, extended the South Griffin field of north Posey County a mile southwest, and was being completed in the Aux Vases at 2784-97 feet for estimated production of 200 barrels natural. The well flowed a head when plug was drilled in.

Two Posey County wildcats were drilling below surface casing. Joe Engberg et al's L. P. Hill 1, NE NE NE 2-4s-14w, 2 miles east of the Swander lease, and Jarvis Brothers' Murphy Heirs 1, SW SE NE 35-3s-13w, 2 miles

east of Superior Oil Company's production on the Mumford Realty Company lease.

Completed in the Hardinsburg sand at 1750-80 feet for an estimated 10,000,000 cubic feet daily was Roberts Brothers' Hall 1, NW NW NE 20-1s-11w, a new gas field pool-opener in White River Township, Gibson County. Surrounding acreage is held chiefly in small blocks by independents.

In Daviess County, 3 miles southwest of Loogootee, Midwest Development Company and L. B. Jackson were moving in materials for Dille 1, NW NE NE 2-2n-5w, projected Devonian test in an old shallow gas field.

In southeast Gibson County, near Warrentown, Illinois-Indiana Basin Corporation's Leo Boeglin 1, E½ SE SW 10-4s-10w, resumed drilling after several weeks shutdown at 1819 feet. It had 1000 feet of oil in the hole from the Cypress sand.

A Jackson County wildcat, near Tampico, J. W. Pearson, Trustee's William Tuckhorn 1, C NE SW 6-4n-5e, was shut down at 101 feet. It is a projected cable-tool test to the Devonian.

In Point Township, Posey County, H. G. Lewis was moving in rotary for Isaac Wolf 2, SE NE SW 25-7s-15w, ¾ mile east of Ryan & Brown's Spencer 1, which tested non-commercial shows in both Aux Vases and McClosky, and about ½ mile west of Ryan & Brown's Wolf 1, also dry. Carl Robinson's People's Savings Bank 1, SE NW SW 26-7s-15w, in the same township has abandoned hope of production in Aux Vases or McClosky and will plug back to test upper sands.

In Spencer County, near Patronville, south of the Rockport gas field, Seitz et al's T. Seay 1, NE NW 5-8s-6w, was drilling below 1050 feet after failing to get a show in the Palestine, normal payoff in the Rockport field.

Kentucky

Henderson Semi-Wildcat Dry in Jett; Deepening

In the Corydon section of Henderson County, Sun Oil Company was drilling below surface casing in J. Snead Clark 1, SW NW Section 4-O-22. H & H Drilling Company is contractor.

A mile south of Hebbardsville, Henderson County, Basin Drilling Company's Joe Walden 1, was reported to have failed to get a show in the Jett sand and was drilling ahead to test McClosky. The test is a mile northeast of O'Connell's Bennett 1, Jett sand discovery which initialed 300 barrels a day.

In Larue County, four miles northeast of Hodgenville, Courtney Combs' Albert Lee 1 was drilling at 740 feet with a slight stain reported at 837 in the Coniferous.

In Daviess County, 2 miles north of Boston, Sohio Production Corporation's Dave King 3, Section L3-N-32 was abandoned through the Barlow at 880 feet.

In Grayson County, 7 miles southwest of Richfield on Highway 54, Sun Oil Company located George Wood 1, projected 2800-foot cable-tool test several miles from production.

Oklahoma

East Cromwell Extended East; Cumberland Outpost Staked

Foundation Oil Company extended East Cromwell pool, Okfuskee County, a mile north at Berryman 1, NEc 35-11n-8e, filling 1200 feet with oil in 12 hours after drilling plugs in Cromwell sand at 3406-17 feet. A 7-quart shot failed to increase the show. Several head flows were made, and operators were bailing to clean out. Tankage has been erected. Olson Drilling Company had contract and made hole with truck-mounted rotary portable rig. Foundation Oil Company staked location for Berryman 2, SE NE NE 35-11n-8e, a south offset. Shell Oil Company's Berryman 1, NE SE SE 35-11n-8e, a west offset to the discovery, logged Cromwell sand 13 feet higher than the discovery at 3445-76 feet. Casing was cemented at 3448 feet, and test was waiting on cement. Two locations east of the discovery, The Texas Company's Berryman 1, NW SE SW 36-11n-8e, was drilling at 3485 feet and had not yet found the pay horizon.

The Pure Oil Company will determine extent of Cumberland pool, Marshall and Bryan counties, to the southeast at part College 1 (200), SWc SE 27-5s-7e, on the Bryan County side and approximately ¾ mile from the discovery well. Drill-stem tests at 5120-5131 feet in lower Bromide sand showed water. Plug was set at 5116 feet, and casing run to this depth to retest zones at 5018-98 feet which previously showed good possibilities. Little 1 (101), NE SW SE 28-5s-7e, south of the discovery in Marshall County, was completed for a flowing gauge of 836 barrels in 24 hours through a 2-inch tubing choke, cutting 0.4 percent basic sediment and mud. First Bromide sand was topped at 4606 feet, second sand at 5047 feet, McLish at 5269 feet and hole carried to 5275 feet. Plug was set at 5087 feet on completion.

May Oil Corporation shut down Sacrea 1, SW NE SW 17-5s-5e, northwest of Madill pool, Marshall County, at 2310 feet in sandy lime. At 1120 feet, the wildcat showed 6,000,000 feet of gas and logged oil shows at 1800-14 feet, 2098-2105 feet and 2258-84 feet. Over 200 feet of oil was reported at Kirksey et al's wildcat test, Baskett Brothers 1, SW SE SE 7-3s-10e, near the Boggy Depot in Atoka County. Sandy lime at 900-10 feet showed good saturation.

Stanley A. Thompson et al's Alliance Trust 1, SW SE SW 22-4n-2e, southwest of Byars pool in Garvin County, drilled out plugs in saturated Pennsylvanian sand to 2929 feet and recovered salt water with a scum of oil. Kerlyn Oil Company et al abandoned location for Butterly 1, NE NW SW 23-1n-1e, in an unnamed gas area of Garvin County.

New Wildcat Activity

Gene R. Burke set 225 feet of 10-inch surface pipe at Estes 1, SWc NE 34-3n-19w, 8 miles northeast of Altus pool in Jackson County.

East of the old Orlando pool, western Payne County, Paul S. Williams has cellar and pits at Francis 1, SW SWc 4-19n-1w, in an attempt to revive this area.

Shell Oil Company staked Linihan 1, SEc NE NE 31-15n-7e, 2 miles north of Stroud pool in Creek County, for a Wilcox sand test.

Danciger Oil & Refining Company will start work at Richards 1, CNE NW 3-17n-4w, on the southeast flank of the Lovell pool, Logan County. Welch, Acton & Brown have rig at Fry 1, CNW NW 4-18n-4w, between Lovell and Marshall pools.

M. C. Mitchell is drilling at Skirvin 1, NE SE SE 10-4n-6e, a north outpost to the Ada gas pool, Pontotoc County.

Justin Oil Company et al's Rhea 1, CS½ SE SW 12-9n-6e, on the east flank of East Seminole pool, Seminole County, logged saturation in a core at 4039-49 feet in Hunton lime. Operators were rigging up standard tools to drill plugs and will acidize prior to testing. Mid-Continent Petroleum Corporation's Porter 1, NW SW NW 12-7n-7e, a wildcat south of Wewoka pool, Seminole County, was drilling below 4355 feet in shale.

Wildcat Failures

I. H. Townsend et al's Lynn 1, NW NE NW 28-6n-4e, east of Asher pool, Pottawatomie County, perforated Viola lime with 58 shots at 3576-96 feet and acidized with 6000 gallons for only a small show of oil. Total depth is 3925½ feet in second Wilcox sand. It was shut down for orders.

W. L. Graham et al's McLain 1, SE SW SW 7-12n-7e, west Paden pool outpost in Okfuskee County, recovered 90 feet of mud on a 35-minute drill-stem test at 2953-68 feet in Prue sand, topped at 2949 feet.

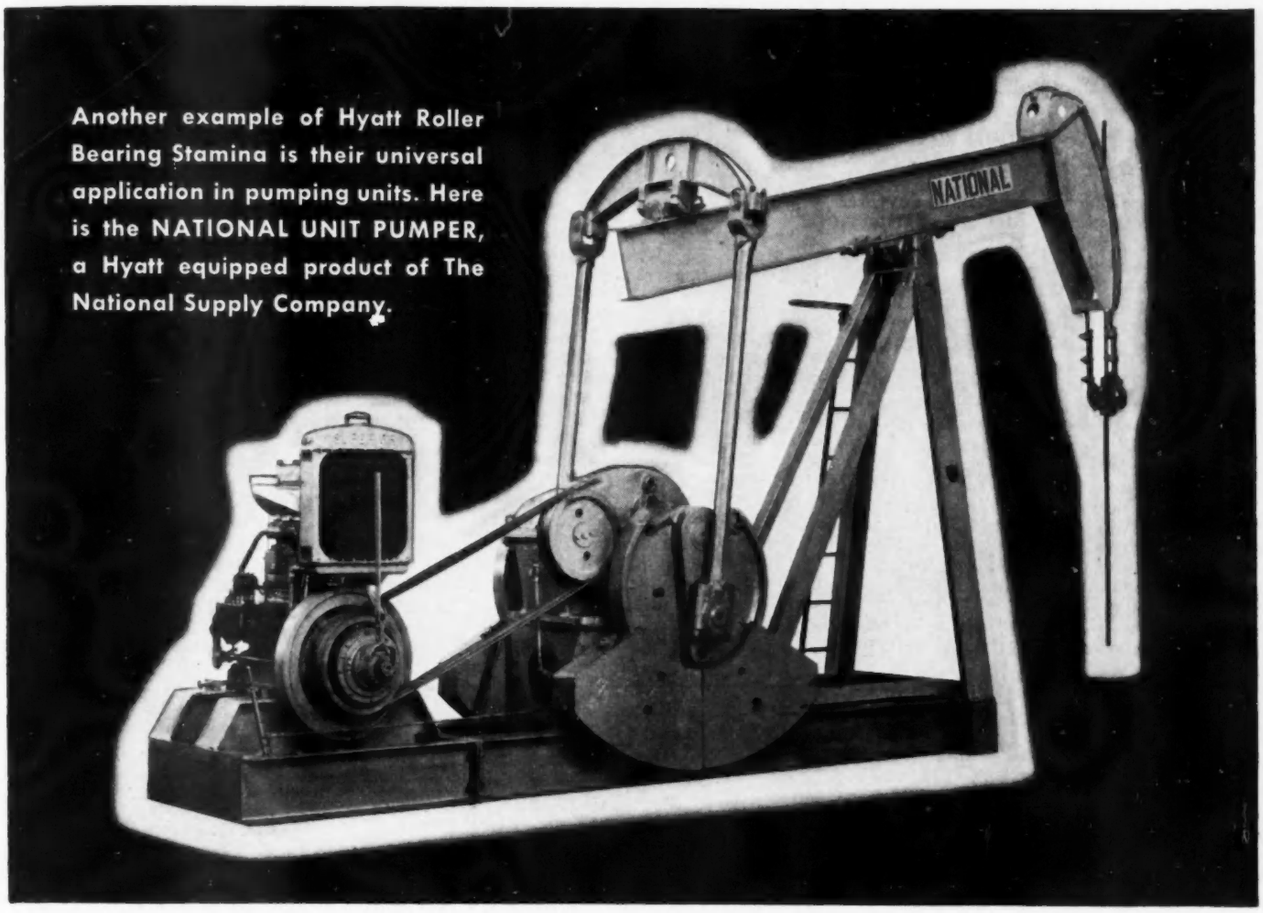
Stonehill Drilling Company defined Olive pool to the east at Vann 1, NW SE NW 7-17n-9e, wildcat test which filled with water when Wilcox sand was penetrated at 3304-30 feet. No shows were logged.

South of Ingalls in an unnamed area with one Wilcox sand producer, H. & H. Oils, Inc., drilled to 3790 feet at Linsemeyer 1, SEc SW 3-18n-4e, Payne County. Oswego lime was based at 3320 feet.

Phillips Petroleum Company was deepening Grape 1, CNW SE 30-18n-5w, below 8200 feet in search of the Arbuckle lime for geological information. This Kingfisher County wildcat failed to show in the Simpson sand.

Wood Oil Company and Link Oil Company's Krolop 1, SWc SE 14-17n-5e, south of Cushing, Payne County, showed water at base of Layton sand at 2265-88 feet and was running 8-inch casing to deepen.

J. J. Hall et al's Walker 1, SE SW SW 4-5n-5e, a wildcat west of South Konawa pool in Potawatomie County, cored a small show of oil in limey sand at 620-30 feet, and was under-reaming 5-inch casing at this depth. Contract depth is 600 feet.



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HYATT

ROLLER BEARINGS

QUIET

Kansas

Production Extensions Made In Fields of Four Counties

Pool extensions featured field developments in Ellsworth, Stafford, Barton and Russell counties. Hayes and Anschutz et al's Hill 1, SEc SW 16-14-14w, ½ mile northwest of Guerney pool, Russell County, acidized Kansas City-Lansing lime at 3148 feet and completed for a potential of 1830 barrels daily.

Stanolind Oil and Gas Company extended Sittner South pool, Stafford County, ½ mile south when Voigt 1, NW NE SW 11-29-12w, established a potential of 181 barrels per day. Arbuckle lime was penetrated to 3634 feet.

Seaney, Clampitt and Carnihan's Boyd 1, C W½ SW SW 4-21-14w, a wildcat southwest of Hiss pool, perforated Viola lime at 3565-75 feet to get water and then plugged back and perforated Lansing lime at 3400-10 feet for a small show of oil, which will be acidized. Arbuckle lime at 3644-48 feet also showed water.

A. G. Kaiser, Earl Wakefield et al's Sausen 1, CWL SW SW, 12-16-14w, ¾ mile south of Trapp pool, Barton County, filled 2900 feet with oil from Arbuckle lime at 3327-33 feet.

J. A. Aylward extended Stoltenberg pool, Ellsworth County, ¼ mile to northwest with Horejsi 1, C W½ NW SW 5-16-10w. Arbuckle lime at 3300-19 feet yielded a 2900-foot column of oil when penetrated. Testing was under way after acidizing with 800 gallons. A maximum well of 3000 barrels is anticipated. Skelly Oil Company defined the southwest edge of production at Boldt 1, C E½ SE SW 21-16-10w, which was abandoned in Arbuckle lime at 3325-39 feet.

Cities Service Oil Company's Ray 1, CNL NW SE 32-5-25w, Phillips County pool discovery, established a permanent potential of 2138 barrels per day in Reagan sand at 3543-85 feet. Previously the wildcat had given a temporary potential of 858 barrels per day.

Marylyn Oil Company had promising shows at Jackson 1, CEL NE NW 1-27-13w, 1 mile north of Iuka pool, Pratt County. Simpson sand was topped at 4214 feet and saturation cored at 4221-31 feet. Pipe was run prior to drilling plugs. Considerable activity is expected between this outpost and the four-well Iuka pool should Jackson 1 make a producer.

Shell Oil Company completed Bean 1, SEc SW 21-23-12w, Stafford County, for a potential of 2700 barrels of oil and 300 barrels of water per day. Pay is Arbuckle lime at 3839-54 feet. Shell Oil Company and Atlantic Refining Company's Riley 1 SWc 28-23-11w, Stafford County discovery, is taking bomb potential after flowing 183 barrels of 25-gravity crude in 6 hours and later averaging 26 barrels per hour for 3 hours. Pay is Lansing lime at 3471-76 feet with plug set at 3650 feet. Productive zone was treated with 6000 gallons of acid.

Wildcat Starts

Champlin Refining Company is drilling with rotary at Hadley 1, CSL SW SE 17-11-17w, a semi-wildcat between Bemis and Burnett pools, Ellis County. Palmer Oil Corporation has rig at Smith 1, CWL SW NW 13-12-16w, approximately ⅜ mile east of Blue Hill pool, Ellis County.

Pryor & Lockhart et al's Borrell 1, C N½ NE SE 3-15-11w, northwest of Haska pool is across the line in Russell County. Duwe & Farris et al's Rathbun 1, C E½ NE SE 6-17-8w, northeast of Lorraine pool and northwest of Edwards pool, Ellsworth County, is rigging rotary. Two miles south of this wildcat, Duwe & Farris et al's Williams 1, C N½ SE 18-17-8w, northeast of Lorraine pool, was abandoned in Arbuckle lime at 3293-3311 feet.

In Barton County, Crown Petroleum Company has pits and cellar at Linder 1, NEc SW 24-17-14w, northwest of Hoisington pool.

A half-mile northeast of Keesling pool, Rice County, Sharon Drilling Company and others have derrick at Keesling 1, C E½ NE NW 10-20-9w. Alpine Oil & Royalty Company moved in rotary rig at Fair 1, CSL SE NW 10-21-9w, 7 miles west of Wherry pool and 2 miles north of Alden gas pool, Rice County. In the same county, R. E. Buckles is spudding Ramsey 1, C E½ SE SE 9-18-7w, northeast of Galt pool.

Sunray Oil Company started operations at Ely 1, NWc NE 5-21-5w, one mile southeast of Bornholdt pool in McPherson County.

A. D. Allison et al's Short 1, NEc 10-24-11e, is rigging machine. This wildcat is between production in the Gafney and Hamilton pools of Greenwood County.

Derby Oil Company and Crow Drilling Company are making hole at Hancock 1, C SE SE 10-32-12w, 4 miles southeast of Whelan pool and northeast of Medicine Lodge pool, Barber County. Barbara Oil & Gas Company's Angell A-1, C NE SE 10-33-14w, 5 miles west of Medicine Lodge pool and northeast of Aetna gas pool, Barber County, is rotating below 2800 feet.

Ault and others are moving in materials at Schmidt 1, SEc NW 14-17-9w, ½ mile west of Lorraine pool, Ellsworth County.

Forest City Basin

Pipe Lines Consider Moving Oil From Nebraska Area

E. J. Shaffer et al's Sandrock 1, NE SW NW 20-1n-16e, Falls City area, cored saturated Hunton lime at 2229-2304 feet and was circulating at 2720 feet to loosen drill pipe in order to deepen to Viola lime.

Stanolind Crude Oil Purchasing Company has been surveying the crude situation in Richardson County, Nebraska, and is reported considering trucking oil to the closest pumping station on its Wyoming-Kansas pipe line, which is Topeka. Union Pipe Line Company, Centralia, Illinois, is also planning a gathering system for the area and move crude by rail to Minneapolis. Bell Oil & Gas Company is contemplating a line in the Falls City area.

Northeastern Kansas

Dan McLaughlin and Young retested McLeod 1, CNW SW 4-10-20e, Oskaloosa, Kansas, discovery, testing 7½ barrels of crude per hour and rating a completion potential of 180 barrels per day. Mississippi lime was topped at 1469 feet and drilled to 1596 feet and plug set 2 feet off bottom. Lime was treated with 1200 gallons of acid.

Dan McLaughlin and Son completed Dark 3, CSE NE 5-10-20e, Jefferson County and also in the Oskaloosa pool, for 3,660,000 cubic feet of gas per day. Mississippi lime was topped at 1464 feet and penetrated to 1470 feet. Rock pressure was 490 pounds per square-inch. W. G. Stark staked location for Ragan 1, CN½ NW NE 4-10-20e.

Six miles north of Linwood gas field, Leavenworth County, W. G. Turner spudded Merritt 1, CNW NE 34-10-21e. Davis-Helm spudded Green 1, SWc NW 9-11-19e, Jefferson County to 45 feet and shut down. In Northeastern Douglas County, S. W. Forrester et al's Altenbernd 1, CSL NW 35-12-20e, filled with water at 1605 feet in Mississippi lime and shut down for orders. Same operators Ice 1, SWc SE 9-14-19e, quit at 940 feet as 6-inch pipe collapsed.

Missouri Activity

Ettington and Holmes abandoned Johnson-Kapps 1, SWc 31-64n-15w in Adair County, Missouri, after encountering water in Arbuckle lime at 1130-63 feet.

O. M. Evans and Skelly Oil Company completed the fourth gasser in the Arnote pool of Caldwell County at Arnote 1, SEc NE 36-55n-29w, gauging 1,750,000 cubic feet per day. Warrensburg sand was topped at 397 feet and drilled to 425 feet. Same operators were drilling with machine at Leamer 1, CSW NE 31-55n-28w.

Ben I. Hall et al's Pryor 1, CSE SW 35-52n-32w, Clay County, is drilling below 250 feet. Davis Brothers are making hole below 323 feet at Lampe 1, CSE NW 12-51n-34w, in Platte County. In Knox County, H. A. Black and others underreaming 8-inch casing at 520 feet at Schempp 1, SWc SE 21-62n-10w. At 541-43 feet a show of oil was logged in the Hannibal formation.

A rainbow of oil was cored at Chillicothe Syndicate et al's Linton 1, NE SW SE 15-56n-23w, Livingston County, in Arbuckle lime at 1140-42 feet. Operators are running 6-inch pipe to test. St. Peter (Wilcox) was topped at 1019 feet.

In Holt County, Brin & Nathan et al's Decker 1, CNW NW 1-61n-38w, drilled plugs in Hunton lime at 2236-2310 feet for no show; it will be acidized.

T. E. Baldwin et al's Johnson 2, SW NE NE 21-65n-15w, Schuyler County, logged Mississippi lime at 489-918 feet, topped Hunton lime at 983 feet and is rotating below 1,225 feet.

E. H. Lawhon et al's Gottschall 1, CSE SE 18-59n-32w, DeKalb County, showed water in Arbuckle lime at 2500 feet. American Oil & Gas Company's Thompson 1, CSW SW 30-58n-31w, topped Viola lime at 916 feet and shut down 1355 feet.

West Texas

Clay and Montague Profit From Deep Exploration

Prospecting for deep lime production in North Texas accounted for an oil strike in western Clay County; probable new pool from the Bend in western Montague County, and a major extension for the K-M-A field.

Combination of geophysical information and projected trend of production between the Halsell and Burns-Browning pools, Clay County, was the basis for drilling H. M. Horton and Pete Wiggins' Howard 1, which flowed 10 barrels oil hourly by heads from Bend saturation at 5460-84 feet after using 3250 gallons of acid. The hole was carried to 5604 feet to comply with depth contract, then plugged back to 5488 feet. Top of Bend was logged at 5458 feet, being 154 feet higher than a failure 2½ miles west. Nearest production is the Halsell Strawn pool, 2¾ miles north by west. Howard 1 will be given additional acid treatments. Phillips Petroleum Company contracted to pay $25,000 cash last April for undivided half interest in the 1320-acre block and test upon the completion of the test, and will assume operating control. This strike gives Clay County 3 Bend-lime producing areas.

Montague County's probable new oil discovery involves Tom B. Owens and Larry Hults' Tucker 1, NWc TE&L Section 2836 feet, 5½ miles west by north of Bowie, which yielded 750 feet of oil-cut mud on 5-minute drill-stem test at 6016-50 feet. Seven-inch pipe was cemented at 6016 feet late last week to try for a completion at this level. Cable tools will be used in drilling plugs, and possibly deepening the hole to the conglomerate section. Top of Bend was logged at 6010 feet, 227 feet higher subsea than Harvey Drilling Company et al's Threadgill 1, nearest deep failure 6½ miles due north. Walter Gant and Continental Oil Company's Brown 1, 7½ miles northeast and recently junked while showing promise of a Bend producer, logged the deep marker at 6077 feet, or 41 feet lower subsea. Walter Gant et al's Will Laird 1, prospective wildcat producer from either the Strawn or Bend, is 9½ miles southeast of Tucker 1, and is 250 feet higher on the same marker. Laird 1 cemented protection string of 7-inch pipe at 6644 feet, with the hole bottomed in Simpson shale at 6654 feet, and will continue to the Ellenburger. The pipe will be perforated, if the latter proves dry.

Britt Cranfill, C. E. Rodgers et al's McKay 1, northwestern Wise County wildcat, was drilling at 5190 feet, having logged nominal oil stain and odor at intervals below 4173 feet. It is 2¾ miles south of Laird 1, and is due to reach the Bend near the 5500-foot level.

K-M-A Extended

Expansion of the K-M-A field 1½ miles northeast towards Iowa Park was realized when Hanlon & Buchanan, Inc.'s Tom Burnett 1, H&GN Section 34, A-435, filled 1200 feet with oil and rotary fluid after drilling plugs from pipe at 4095 feet. Production is from sand at 4138-48 feet and sandy-lime at 4148-65 feet followed by dry shale to 4186 feet. Top of Strawn lime marker was logged at 3986 feet, being 20 feet lower subsea than the nearest oil producer. The broken pay is slated for a nitro shot.

Continental Oil Company et al's O. O. Ross, Jr. 2, south offset to the Bend-lime discovery of the Jolly pool, Clay County, was flowing oil by heads while drilling at 5436 feet in Bend saturation, topped at 5387 feet. Three earlier producers required acid to attain steady flow.

British - American Oil Producing Company's Martin 2, northwest edge of the Ringgold pool, Montague County, was showing a small amount of oil while swabbing through tubing with the hole bottomed at 5965 feet in either Simpson, or Ellenburger lime, topped at 5860 feet. No free oil was present after drilling plugs from 5½-inch pipe, cemented at 5670 feet, and washing the hole with fresh water. Oil saturation was logged in the Upper Bend at 5680-5687 feet and 5706-13 feet, Lower Bend at 5815-18 feet and 5831-36 feet, and in Ordovician at 5870-80 feet and 5895-5910 feet. Failure of the well to kick off may be due to rotary mud being in contact with the pay levels for several weeks.

A. R. Dillard and E. C. Norwood's Holland 1, a mile northeast outpost for the Bonita pool, Montague County, failed to indicate production in the two Bend conglomerate zones, but will run drill-stem test on promising show at 5505-13 feet. Magnolia Petroleum Company's Gilbert 3, north offset to production, proved dry when formation tester was used at 5507-16 feet, and was coring at 5540 feet. The latter logged top of Bend marker at 4279 feet, or 16 feet lower subsea than the offset. Sinclair Prairie Oil Company's Lee 2 proved dry on drill-stem test in the upper pay zone at 5260-5320 feet, and is deepening, while Howard 3 has landed 7-inch at 5234 feet. Variation of pay conditions rather than structural position determines the ability of a well to produce within the pool proper. This is confirmed by 3 dry holes that offset production.

Nocona to Have New Outlet

Rogers & Rogers' Astley-Texaco 5, SEc of 150-acre lease in the Nocona deep pool, flowed 182 barrels of oil natural in 3 hours through tubing chokes on proration gauge. Pipe was perforated opposite Upper Strawn saturation at 4305-25 feet and 4331-37 feet. Development in this area has been at a low level for some weeks, although the allowable per well is among the highest in the district, and a second pipe line outlet is to be built later this month.

C. W. Clark et al's Goldsmith 1, first deep test for the Swastika shallow district, southwestern Archer County, is credited with having logged top of Mississippian at 5190 feet and Ellenburger at 5415 feet, and was coring at 5420 feet. Electric log will be run to ascertain if numerous zones of nominal saturation and porosity in the Lower Pennsylvanian and Mississippian warrant running pipe for a production test.

In Hardeman County, A. P. Gilbert et al's Robert Weekley 1, 10 miles south of Chillocothe, was to have pipe run to bottom of hole at 3918 feet and perforate opposite oil saturation indicated by electric log. This method of completion will be followed because of possible water sands between oil saturation zones. Top of Landreth lime was called at 3628 feet, and a second lime marker was at 3698 feet.

North Texas

Crinoidal Zone Extended in Two Directions at Todd

The Crinoidal lime recorded two oil producers for the Todd structure, Crockett County, providing a ½-mile west extension and a southeast outpost. Continental Oil Company et al's Todd 5, C SW SE GC&SF Section 29, gauged 457 barrels of 41.6-gravity oil in 6 hours through 1-inch tubing choke from saturation at 5815-95 feet with gas/oil ratio of 518/1. Top of Crinoidal was logged at 5785 feet, or 3296 feet subsea, being 82 feet lower than offsets to the north and east.

The west extension was provided by Amerada Petroleum Corporation et al's Todd 1, CNE SE Section 24, with a flow of 16.6 barrels in 2 hours from saturation at 5838-45 feet and 5864-78 feet. Hole is bottomed at 5880 feet, or 52 feet in the Crinoidal, topped at 5828 feet with an elevation of 2435 feet. It will be deepened, as the 4 earlier producers penetrated the section from 100 to 115 feet without encountering water. However, this outpost is 278 feet lower on the Crinoidal marker than the discovery, which is the nearest producer. A new test for the area involves Continental et al's Todd 6, C NE NE Section 32, two locations south of the discovery. Allowable production of the completed wells is delivered to The Texas New Mexico Pipe Line Company's Sonora station by tank truck, but a direct pipe line connection has been authorized.

Gas blowout encountered at 3150 feet by Taubert - McKee and Siemoneit's Crockett 1, northern Pecos County wildcat on a trend between the Sand Hills and Apco deep producing areas, was rated at 1,500,000 feet daily. The gas became ignited, causing nominal damage to the rig, but operations were scheduled to be resumed late last week, with the Ordovician zones as the objective. This prospect is a mile southwest of McKee 1-A, which showed oil and gas in the Simpson, topped at 4775 feet, but failed to make a commercial well on plugging back from Ellenburger at 6102-6267 feet. Plymouth Oil Company's Levy 1, northwestern Pecos County wildcat, was abandoned after acid treatment developed sulphur water at 4072 feet, with pipe cemented at 3999 feet. The hole was plugged back from hard chert at 6473 feet. Base of Permian was called

at 6075 feet, with an elevation of 2473 feet.

The Holt pay in the Clear Fork series will be tested by Stanolind Oil & Gas Company's Midland 1-C, Ector County semi-wildcat and 1¼ miles east of the North Cowden field. It was drilling at 4890 feet, having passed up small show of oil and water in saturation at 4773-4845 feet, which was acidized after cementing 5½-inch pipe at 4726 feet.

Upton County has two semi-wildcats in process of completion as oil producers. Texas Pacific Coal & Oil Company's Eddleman 1, NE Section 208, Block F, 1¾ miles south by east of nearest production in the McClintic sector of the Gulf-McElroy field, tested ½ bailer live oil hourly from oil saturation at 3000-50 feet. Seven-inch pipe was cemented at 2865 feet after drilling to 3200 feet. The hole will be deepened about 50 feet before shooting. This outpost logged top of lime at 2845 feet, or about level with nearest wells. J. W. Ellis et al's Burleson 1, E¼ of E¼ of H&TC Section 65, Block 35, and ½ mile northeast of McCamey townsite, was rated as a 10-barrel pumper after plugging back from sulphur water at 2146-85 feet to 2142 feet. It is 1¼ miles south by east of production, and will likely result in additional drilling on intermediate acreage.

The Lower Permian beds are being explored for the first time in the Wasson field, largest producing area in the district, with the drilling of Amon G. Carter et al's A. L. Wasson 4-D, NWc SE PSL Section 50, Block AX, in unidentified formation at 6110 feet. Nearby wells are producing from the 5100-foot level, which failed to carry sufficient saturation to make a producer of Wasson 4-D. Swabbing test through tubing at 5272 feet, or 1708 feet subsea, averaged 10 barrels sulphur water hourly. The Sloan & Zook Company and Tom Sloan's Waples-Platter 1, ¾-mile northeast outpost for the Waples-Platter pool, filled 2000 feet with oil after recovering residue resulting from treatment of broken pay at 5240-97 feet with 5000 gallons of acid. More acid will be used to try for a flowing well.

Magnolia Petroleum Company and Atlantic Refining Company's H. & J. 12-265, C SW SE Section 265, threatens to become the third failure for the Seminole field through having tested sulphur water after using 2000 gallons of acid at 5285 feet. Offset producers to the north and east showed average potentials at about the same level. The hole will be plugged back to reacidize the upper portion of the lime. It is ½ mile northwest of a failure drilled before accurate information was available on the area.

J. K. Hughes Oil Company's Shannon 1, 2½ miles north by east of the Soma pool discovery, was drilling at 1515 feet, having cemented protection string of 7-inch pipe at 1495 feet in anticipation of gas production in the Yates section, topped at 1415 feet with an elevation of 2863 feet. It is 52 feet lower on structure than M. & M. Drilling Company's Bouscaren 1, intermediate test that is idle at 1555 feet after testing 40,500,000 feet of dry gas daily from the Soma sand in the Yates at 1512 feet. Mudge Oil Company's Noelke 1-B, SW NW NE Section 30, has erected machine to drill a north offset to its Noelke 1, which has been shut in since indicating large oil and gas flow on July 6 at 1134-44 feet. Mudge Oil Company paid $400 per acre cash and $600 per acre from production for the 40-acre site bearing the new test. Moore Exploration Company and Olson Oil Company's Halff 1, a mile south of the Soma pool, passed up nominal oil and gas shows in drilling to 1510 feet, and will continue to the Permian lime. Top of Yates was called at 952 feet, with an elevation of 2404 feet.

Gulf Oil Corporation's Wristen 5, prospective Ordovician strike for the Shipley pool, Ward County, was having difficulty in clearing hole of junk at 9187 feet. It is scheduled to run pipe for production test of comparatively thin section of saturation in Ellenburger, topped at 9002 feet.

East Texas

Chapel Hill Extended West By 200-Barrel Well

Productive limits of the Chapel Hill field, Smith County, were extended west when Shell Oil Company and Sun Oil Company's Bacon 1, northeast corner of Enoch Tunnell Survey, flowed 67 barrels of distillate in 8 hours through ¼-inch tubing choke. Gas volume was rated at above 1,000,000 feet daily. Production is from casing perforations opposite Pettit saturation at 7968-8003 feet and 8021-54 feet, with the hole bottomed at 8111 feet. The area has four gas-distillate producers and two oil wells, which are on the north end of the structure.

Shell Oil Company's Kinsey 1, north offset to the first oil completion, logged massive anhydrite at 7162-7439 feet with an elevation of 436 feet, and was coring at 7580 feet. Sun Oil Company's Jones 1, east outpost for the gas-distillate sector, logged Travis Peak at 8148-69 feet, and cemented 5½-inch pipe at 8155 feet. It will plug back and perforate opposite Pettit saturation.

An open flow test given Lone Star Gasoline Company and Shamrock Oil & Gas Corporation's McGee 1, Opelika pool, Henderson County, rated the gas volume at 165,000,000 feet daily. It was originally completed in January, 1939, by Tide Water Associated Oil Company et al from perforations in the Pettit lime, and the new owners made additional casing perforations at 8066-78 feet and at 8142-74 feet, then used 4000 gallons of acid. The well flowed 578 barrels of white distillate through ¼-inch choke after acidizing.

Three additional tests are being drilled by the purchasers of the discovery block and to support a gas recycling plant now under construction.

Gulf Oil Corporation is credited with having awarded contract for the drilling of an offset to Harry Moss and Delta Drilling Company's Venters 1, recently completed wildcat oil producer from the Travis Peak sandstone in Camp County. The discovery has remained shut in since gauging 152 barrels of oil initial, as lease tankage is filled and arrangements have not been completed for the trucking of the oil to a pipe-line connection near Gladewater.

North central Wood County has been assigned a Lower Trinity test by Amerada Petroleum Corporation on a 3000-acre lease block. Location is in northeast portion of the J. J. Lloyd 154-acre tract, William Barnhill Survey. Delta Drilling Company has contract to drill to 6500 feet, and was moving in the rig.

Texas Permits

The Texas Railroad Commission last week approved permits for drilling 217 wells, 59 more than were authorized the week before.

Operators in the East Texas field reported 15 permits, with 13 in Gregg, 1 in Rusk and 1 in Upshur County. From the remainder of the East Central Texas area, 18 locations were listed, including 11 in Marion County.

Southwest Texas led the state with 63 permits, including 12 in Webb and 10 in Jackson County. Gulf Coast operators reported 27 locations.

The North Texas district held second place with 43 locations, including 13 in Archer and 10 in Wichita County, while Panhandle producers were allowed to drill 8 additional wells.

The commission authorized permits for 22 wells in West Central Texas, and West Texas operators reported 21.

Ask Shutdown Exemption for Lewis-Steffens, Jones County

Operators in the Lewis-Steffens field, Jones County, requested that the field be exempt from future shutdowns at a Texas Railroad Commission hearing last week. King Oil Company presented evidence to show that 25 percent of the wells are not making allowables assigned now, and that average production under current allowables of 17 barrels, is about 9 barrels per well per day. There are 105 wells in the field.

Fain-McGaha Oil Corporation requested additional production to supply repressuring plants in the field which have insufficient gas. Humble Oil & Refining Company, the purchaser, made no commitment concerning the purchase of the additional oil that would be produced.

Texas Hearings

The Texas Railroad Commission has scheduled three hearings for September 16, at Austin. The method of allocation in the Penwell field in Ector County may be revised. Some of the wells have recently become marginal and affect unit allowables assigned.

The commission will also consider an application for an increased allowable for wells producing from the Navarro sand in the Pearsall field, Frio County.

At a hearing on the Johnson field, Ector County, the commission will consider revision of Rule 4, which provides that to obtain full credit, a well must be located on a 40-acre unit at least 1320 feet from other wells on the same lease. Exemption will be requested for wells drilled somewhat closer than provided in this rule.

A.P.I. Production Office Moved

The American Petroleum Institute's Division of Production office has been moved from the Gulf States Building to 1205 Continental Building, Dallas. The new telephone number is 7-3727.

Southwest Texas

North Rincon Extension Showing in New Zone

Establishment of a new oil zone and extension of the North Rincon field nearly two miles northeast was assured with Sun Oil Company's Saenz-State 1 showing for a producer in a 5000-foot sand, which possibly is in the basal Frio. The test cored a sand with oil showing at 4994-5002 feet, salt water sand to 5034 feet and more oil sand 5072-75 feet. A drill-stem test at 4994-99 feet recovered 10 feet of fresh water, 30 feet of oily mud, 560 feet of oil and a good gas blow with 1150 pounds bottom-hole pressure in 10 minutes. A drill stem test at 4991-5002 feet recovered 560 feet of salt water under 375 pounds pressure. The well was being cored below 5325 feet at last reports. It is located in the southwest portion of Survey 80.

Borsodi Petroleum Company's Vela 1, one mile south of the Boyle field, Starr County, and the discovery of a new Frio sand, was being reworked. A squeeze job resulted from a high gas/oil producer through perforations at 3167-75 feet. New perforations will be made about the same level.

Driscoll Southeast Well May Be New Field

Mirando district either has a field extension or a discovery in Continental Oil Company's Driscoll 1-B, which was completed as an oil producer in a sand apparently at the basal Frio. The well is near the southeast corner of Section 481 and is 1¾ miles southeast of the Driscoll field.

After being drilled to 4515 feet, the hole was plugged back and casing set at 3967 feet. Perforations were made at 2518-20 and 2544-46 feet following which cement was squeezed. New perforations were made at 2530-35 feet with 12 shots and the well flowed 117.9 barrels of 23-gravity oil per day through ½-inch choke. Pressures were 60 pounds on tubing and 640 pounds on casing, water volume being 2.2 percent and gas/oil ratio 68 to 1.

Deep Sand at Lolita Appears to Blanket Jackson County Area

Extension of the 6400-foot sand of the Lolita field of Jackson County more than 7000 feet west was indicated as Shell Oil Company tested Willoughby 1, Block 33. The well, an east offset to the Barnsdall Oil Company's Lazarus producer, cored broken sand with an oil showing at 6378-88 feet, oil sand at 6388-91 feet, and sandy shale at 6391-95 feet. A drill-stem test was made of the full section, but the tool slipped, and a second test was being run. The test is the second in the field to go to the lower level. Its showing indicates that the entire area is blanketed by the new pay, materially increasing the reserve.

Humble Oil & Refining Company was attempting to open a new producing zone or new pool 1½ miles east of gas production in the McFaddin field, Victoria County, with Nave 1, Traviersa Survey. The test made oil and salt water through perforations at 5947-49 feet. New perforations were made at 5944½-45½ feet, where the well swabbed dry. The same section was reperforated and another test was underway.

Three miles north of the Midway field in San Patricio County, Norsworthy Production Company found oil and gas showings in the Greta zone in McDaniel 1, Lot 2, Block 9, Stanolind Oil & Gas Company's farmout. Three drill-stem tests at 5172-79 feet failed. Another test at 5183½-89 feet recovered 20 feet of gas-cut mud under 240 pounds pressure in 10 minutes. A test at 5194-5203 feet resulted in 40 stands of salt water in 30 minutes. The hole was coring below 5560 feet at last reports.

In Nueces County, interest centers around the development on the east side of the Agua Dulce and Stratton fields where an important crude reserve is being developed. The entire trend flanking these fields on the east appears to have lenses with crude producing possibilities. The latest strike is S. E. W. Oil Company's Union Central Life Insurance Company 1, Section 197, which cored oil sand at 6667-6703 feet. Drill-stem test indicated a commercial well. Pipe was landed on bottom at 7168 feet, and perforations were being made as the week closed.

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Texas Gulf Coast

Rowan and Ogburn Proved; Deepest District Hole Testing

Notable developments included confirmation of the Rowan and Ogburn fields, and the testing of Munson 1, Brazoria County, deepest hole in the upper Texas coast. At Ogburn, northwestern Harris County, W. L. Goldston completed Josey Farms 1, 2500 feet northwest of the discovery, for 5 barrels of 42-gravity oil daily through ⅛-inch choke from 6654-58 feet. Tubing pressure was 200 pounds. This sand is 300 feet higher than the 6918-26-foot discovery pay, which showed gas in Josey 1 on drill-stem test at 6937-42 feet. An oil sand was cored directly below the discovery sand but would not flow. Christian-Carpenter Drilling Company and Richardson were below 5400 feet in Rorick 1, 1¾ miles southwest of the discovery. Other leaseholders, Pan-American Production Company, Falcon-Seaboard Drilling Company and Cities Service Oil Company, have not yet announced locations. The confirmation followed failure in Christian-Carpenter et al's Sweeney 1, 500 feet east of the discovery, dry at 7012 feet.

On 24-hour potential test Hubbard 2 Rowan & Nichols' second well at Rowan, Brazoria County, flowed 168 barrels of 42-gravity oil through ⅛-inch choke. Tubing pressure was 1875 pounds, casing pressure was 1640 pounds. Perforations were made in discovery sand at 8515 feet. Operators rigged a third test, Bradbury 1, 2200 feet southeast of the discovery.

Glenn McCarthy finished cutting and pulling tubing cemented in Munson 1, Bailey's Prairie wildcat in Brazoria County, which at 11,860 feet is the deepest hole ever drilled in the upper Texas coastal region, and perforated at 11,400 feet for a drill-stem test that recovered 300 feet of 30-gravity oil with excessive salt water in 28 minutes. A squeeze job was made and retainer plug was drilled for another test at an unannounced point. If a well is made in the lower 400 feet of hole, the test will be the deepest producer in Texas.

New wildcats included The Ohio Oil Company's Blackburn 1, in the Sugar Valley area, Matagorda County, a projected 9500-foot Frio test in the Pettus Survey on a Texas Company farmout tract. The latter company drilled two deep dry holes in the area earlier in 1940, Taylor 1 and 2, dry below 9100 feet, as was Royal Oil Company's Erwin 1, a 1937 test. The structure was found in 1936 by The Texas Company and Skelly Oil Company. In the Pheasant area of Matagorda County, Transwestern Oil Company has taken 500 acres in the Payne, Grayson, Reed and Lowery surveys. Humble Oil & Refining Company has a large block in this area which they have been reshooting.

Edwards Drilling Company was moving in materials for W. P. Luse's Hlavaty 1, north outpost to South Esperson production, Liberty County. The 9000-foot test will be drilled in the GC&SF RR. No. 22 Survey. Geophysical activity in Liberty County was extensive, with Atlantic Refining Company operating southwest of Cleveland, The Ohio Oil Company shooting northeast of Cleveland, and Arkansas Fuel Oil Company and Republic Production Company working northwest of Moss Bluff.

At Chocolate Bayou, Brazoria County, Housh & Thompson were moving in materials for Phillips Petroleum Company's Houston Farms Development Company 1, Perry & Austin Survey, 3 miles southeast of Rowan production. Glenn McCarthy was working over Houston Farms Development Company 2, which was reported recompleted for 50 to 60 barrels daily from 9865-75 feet, but was squeezed and operator was drilling plug.

Wilcox exploration interest centered in Mayo and Micheaux's Bollman 1, Austin County wildcat on the New Ulm prospect, coring for Wilcox below 6400 feet, and Harrison & Abercrombie's Sun Oil Company Fee 1, on the Sheperd prospect, San Jacinto County. This well was also coring for Wilcox below 8400 feet.

The Rockland field, rediscovered in 1940 in a 1268-foot horizon, was reportedly without a producer as Midwest Oil Company of Texas was working over Boykin 1, discovery, and Boykin 3, 74-barrel pumper, ceased to produce. The company has drilled two failures in an attempt to develop the inconsistent sand.

Glenn McCarthy, contractor, took over The Texas Company's Kainer 1, wildcat on the Southwest Algoa prospect, Galveston County, and was drilling near 9800 feet toward a 10,000-foot objective.

Galveston Bay exploration gained new impetus as Humble Oil & Refining Company applied for drilling permits on State tracts 49, 52, 69 and 72, near Umbrella Point, and State tracts 84 and 85, near Smith's Point. There are now 7 wildcats drilling in the bay, on the Elm Grove and Fishers Reef prospects, and in the Red Fish Reef field. Two other water locations are near Sabine Pass, Jefferson Coutny, on the Gulf of Mexico prospect. Here Hall-Jordan Oil Company was driving piling for State 2-71, 9000 feet south of State 1-72, now drilling below 4200 feet.

South Esperson Dome Field Receives 20-Acre Spacing

Standard 20-acre spacing for wells in the South Esperson Dome field, Liberty County, is provided in a new Texas Railroad Commission order. Proration is on a straight acreage basis, with a maximum of 30 acres assignable to the final well on a lease.

The regulations provide for 1200 feet of surface casing cemented 400 feet above the shoe, and an oil string cemented 1000 feet above the shoe.

Atascosa County Test Of Austin

W. J. Walton again attempted to complete a producer in the Austin chalk for a new field in Atascosa County. B. R. Tuerpe 1, Rogers Survey, 9 miles southwest of Atascosa, was testing after hole had been plugged back to 2440 feet. Previously, it had been plugged back to 2565 feet where it tested sulphur water and oil. Hole is bottomed at 2830 feet in Edwards lime, topped at 2823 feet. Austin chalk was topped at 2823 feet.

Louisiana Gulf Coast

South Crowley Re-established As Oil Field by 7600-Foot Well

Humble Oil & Refining Company re-established South Crowley, Acadia Parish, as a producing field by completing Leger 1, 7612-foot wildcat, for 33 barrels of 36-gravity pipe-line oil hourly through ¼-inch choke, from Miocene sands, topped at 7602 feet. Tubing and casing pressures were equalized at 1100 pounds. The field has apparent multi-zone possibilities, as drill-stem test at 7552-60 feet recovered 13 thribbles of 36-gravity oil in 6 minutes through ¼-inch chokes under 60 pounds pressure. A strata at 7560-70 feet drill-stem tested 23 thribbles of oil in 8 minutes under 110 pounds pressure. The well, in Section 22-10s-1e, is an east offset to the firm's Boyd-Finch 1, which in 1938 produced 21 barrels hourly from 7304-14 feet, was killed and recompleted for 35 barrels daily in same sand. This well was abandoned after producing 1786 barrels of 35-gravity oil. The test is the ninth for the prospect, four deep dry holes preceeding the original discovery, and three dry holes following. The current test was drilled on a block assembled by Lew Wentz, and includes acreage once relinquished by Humble Oil & Refining Company. Other leaseholders are Sun Oil Company, Stanolind Oil & Gas Company and The Ohio Oil Company. The prospect was discovered in 1934 by the discovery operators with torsion balance. There is evidently a fault of considerable displacement between Boyd-Finch 1 and Leger 1, as the 7602-foot sand in Leger 1 correlates with the 7304-foot sand in Finch 1, which was drilled to 10,222 feet, encountering sands with oil odor at 8260-75 feet.

In the Fenton-China-South Elton area of Jefferson Davis Parish, Union Sulphur Company was testing Calcasieu National Bank 1, and appeared certain to make a discovery, thirteenth in 1940 for the Louisiana Coast. The wildcat flowed intermittently for several days, making gas-distillate and wash water through ⅛-inch choke from 9300-04 feet. Latest gauge was 33 barrels of 51-gravity distillate daily through ⅛-inch bottom-hole choke and needle valve top choke. Pressure was 3100 pounds. The test blew out from this zone while running casing. With screen at 9494 feet, the well made dry gas, then 100 percent salt water. Other zones may be tested before a final attempt at completion. The structure, in Section 36-7s-4w, was found in 1938 by Union Sulphur Company with reflection seismograph. The company drilled Tietje 1 and 2, abandoning No. 1 at

South Crowley, abandoned Acadia Parish semi-commercial field was back on production as Humble Oil & Refining Company completed Leger 1 for 33 barrels per hour, registering the twelfth 1940 discovery for South Louisiana. At China, Jefferson Davis Parish, Union Sulphur Company established the thirteenth 1940 strike, testing Calcasieu National Bank 1 at 16 barrels of distillate daily from 9300 feet.

9220 feet after finding shows at 7632 feet, and No. 2 at 9453 feet with no shows. The field, which will probably be called China, is 2 miles west of the South Elton distillate field, which produces from Marginulina at 9137 feet.

Welsh Dome Flank Production

The first flank production at Welsh dome, Jefferson Davis Parish, was in prospect as Cheesman & Cranston's Bourgeouis 1, south flank wildcat, was reported making distillate from a 5600-foot sand. A drill-stem test at 5301-16 feet recovered gas and distillate under 735 pounds pressure. The well, in Section 23-9s-5w, is 50 feet east of a 6107-foot Tide Water Associated Oil Company failure which had gas sands at 5175 feet.

Humble Oil & Refining Company spudded Great Southern Life Lumber Company 2, Denham Springs area wildcat in Livingston Parish. Location for the 10,000-foot test is in Section 21-7s-4e, 6 miles west of the company's Great Southern 1, 9371-foot 1939 failure. Six miles west of the current location, Roberick-Tower abandoned Pirie 1 at 9050 feet, and Fowler & Tower abandoned Hood 1 at 8008 feet, with sands carrying oil odor at 7656 feet. Humble Oil & Refining Company has 350,000 acres of the lumber company's land in Livingston, Tangipahoa, St. Helena, St. Tammany and Washington parishes and has agreed to drill a 6000-foot test each year for four years.

At Erath, Vermilion Parish, Humble Oil & Refining Company was nearing the 11,378-foot pay in School Board 1, ½-mile west extension attempt. Outcome of this test will indicate largely the importance of the field as this 1940 discovery has dry holes to the north and southeast.

Humble Oil & Refining Company began another attempt to confirm the Bayou Des Glaise field, Iberville Parish, moving rig 26 feet from the discovery to drill Wilberts 3-B, a directional hole. The company abandoned Wilberts 2-B at plugged back depth of 8015 feet. Test at 8180-94 feet swabbed a barrel of salt water with a trace of dead oil. The well produced for several days from the discovery sand at 8648-58 feet, and from 8660-8731 feet, but died and was drilled to 9100 feet, where stuck drill pipe forced abandonment.

Neale field, notable Beauregard Parish 1940 discovery, received two Atlantic Refining Company locations. Rice Land & Lumber Company C-1 will be a 1½-mile west extension attempt in Section 28-3s-11w. Spiers 3 offsets Whitmer 1, discovery well, Section 26-3s-11w. Development here has been rapid and has revealed a large structure of low relief, the only known dip being west 20 feet in ½ mile. Martex Oil Company's Musser-Davis 1, a mile east of the discovery, was near or in the 8300-foot pay and will supply interesting information on the attitude of the structure. Two inside locations, Whitmer 2 and Spiers 2, were completed.

Louisiana Permits

Twenty-two permits to drill were authorized last week by the Louisiana Conservation Commission of which 14 were in North Louisiana in the following parishes: Bossier 1, Caddo 7, La Salle 5, and Morehouse 1. The 8 in South Louisiana were in the following parishes: Acadia 1, Evangeline 3, East Baton Rouge 1, Iberia 2, and St. Martin 1.

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North Louisiana

New LaSalle Parish Wildcat Staked; One Testing

Although H. L. Hunt's Goodpine A-1, SW NW 10-7n-3e, LaSalle Parish wildcat near Jena, showed much salt water along with a little oil when tested last week at 3695 feet, main interest in North Louisiana continued in this area as Atlantic Refining Company made location for a wildcat 4 miles away, Goodpine B-1, NW NW 26-7n-2e, and started to rig up. Hunt's wildcat test, after perforating at 3180 feet and showing 98 percent salt water along with some 38.4-gravity oil, prepared to make squeeze job for another test to shut off the water flow.

Northeast of the shallow Olla field, LaSalle Parish, Allen & Breedlove's Howell & Crichett 1, SW NE 32-11n-3e, was shut in after blowing out of control, making some water with the gas. Total depth is 2540 feet, and Wilcox was topped at 1600 feet. Five miles south of Olla production, Petersen Petroleum Corporation's Tremont Lumber Company 1, NE SW 25-9n-2e, has installed pumping unit after a series of tests showed oil, gas and salt water when casing was perforated at 3160-63 feet. Total depth is 4020 feet. In the 3160-63-foot level, the gas flow was estimated at 10,000,000 feet daily with rock pressure 1325 feet. It was killed, and casing again perforated at 3036-39 feet where 7 barrels of fluid per hour was made on ⅛-inch choke, with one third water, the oil being 33.1-gravity. These perforations were squeezed off and hole re-perforated before the pumping unit was installed. Four new wells were completed at Olla last week.

Shell Oil Company abandoned its 7500-foot wildcat, Pickering Lumber Company 1, CNE SW 30-4n-12w, on the south flank of the Sabine Uplift in Sabine Parish. Total depth was 7562 feet. It was a geophysical prospect and no more tests on the Louisiana side of the 75,000-acre block that extends across the line into Texas are contemplated. J. B. White et al, Dallas, abandoned A. N. Dailey 1, SE 1-11n-6e, Franklin Parish, at 3016 feet.

V. A. Hardin's Valentine 1, NW NW 31-20n-6w, Claiborne Parish wildcat, fished for hung drill pipe after claiming a slight showing of oil in a core at 4816-24 feet with full recovery. Total depth is 5023 feet. The last two feet of the core was reported to be gray lime with pin points of oil. In a core at 4824-40 feet, with 15 feet recovery, one foot was reported the same formation with pin points of oil showing. Top of anhydrite stringer was 4394 feet, with massive anhydrite logged at 4560-4798 feet.

Union Producing Company's Meadows A-1, Section 18-21n-4w, two miles north of the Lisbon field, drilled sandy shale at 6790 feet.

Union Producing Company's Garrett A-1, William Moody Survey, outpost test at Joaquin, Shelby County, Texas, recently completed in the Glen Rose lime at 4995 feet, gauged open flow at 144,000,000 feet of wet gas last week after acidizing. Superior Oil Corporation, drilling a series of wildcat tests in Shelby County, Texas, made location for another 6000-foot operation, Pickering Lumber Company 5, D. Gonzales Survey. Ryan Consolidated Oil Company, Dallas, is preparing to start soon on a Travis Peak wildcat in Cass County, near Linden. Its 16,000-acre block is in the J. Burton and adjacent surveys.

Arkansas

Confirmation at McKamie Running 20 Feet Lower

Atlantic Refining Company's Bodcaw Lumber Company 2, SW SE 29-17-23, offsetting the same company's discovery well at McKamie, LaFayette County, drilled at 8973 feet last week after logging top of the Buckner lime at 8913 feet, elevation 272 feet, 20 feet lower than the same marker in the discovery, completed as a gas/distillate producer at 9221 feet.

Another dry hole for the Paluxy-sand producing area at Fouke, Miller County, which has only two oil wells, appeared likely last week as Standard Oil Company of Louisiana's W. P. Sturgis 4, NWc N½ NE SE 1-17-27, showed only 2 feet of oil saturation in a core at the producing horizon, cut from 3625-45 feet.

One well was completed in the Magnolia field, Columbia County, another was in course of completion, and the third was flowing into pits making 30 percent salt water. The latter is Placid Oil Company's Booth B-2, SW SW 20-17-19, which perforated with 42 shots at 7622-27 feet. Berkshire Oil Company, completing H. C. Couch 1, SE SE 22-17-20, made location for a second test, offsetting the looming producer, which would be the field's one hundred and eleventh producer. Total depth is 7700 feet.

Two tests are drilling in the Dorcheat field. Standard Oil Company of Louisiana spudded its latest wildcat, Longino & Goode 1, NW SE 10-18-20, Columbia County.

Arkansas Permits

Three drilling permits were authorized last week by the Arkansas Oil & Gas Commission, as follows: Columbia County — Standard Oil Company of Louisiana's L. A Longino Community 1, CNW SE 10-18-20; Miller County—Standard Oil Company of Louisiana's Sturgis 4, NW N½ NE SE 1-17-27; Union County—McCreslenn Oil Company's J. C. Parker 5, SE NW SE 3-18-13.

San Salvador Recycling

Gulf States Oil Company has been granted a permit by the Texas Railroad Commission to operate a processing and recycling plant in the San Salvador field, Hidaglo County.

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Test Tinsley Well That May Open New Horizon

Union Producing Company last week tested Powell 1, SE SW 36-11n-3w, on the north side of the Tinsley Dome field, Yazo County, which had given indications of opening the Tuscaloosa (Woodbine) sand as a producing horizon. After running testing tool to 6088 feet and leaving it open two hours, the well refused to flow and operators pulled testing tool and perforated casing at 6110-15 feet for a production test. Cement was drilled out to 6117 feet. With elevation of 309 feet, this test topped Wilcox at 1895 feet, Midway at 3950 feet, chalk at 4762 feet, had Woodruff at 4933-52 feet, topped Eutaw (Blossom) at 4996 feet, had Perry sand of that zone at 5361-79 feet and the Lammons sand at 5577-93 feet, and topped Tuscaloosa at 6110-56 feet.

One of the largest wells at Tinsley Dome was completed in the northeast part of the field by Magnolia Petroleum Company at J. J. Milner 2, C SW 6-10n-2w, which flowed 384 barrels in three hours through 2½-inch open flow tubing, with tubing and casing pressure zero. With elevation of 294 feet, this test topped Woodruff sand at 4962 feet and the Perry sand at 5388 feet.

The first drilling operation to pass the 10,000-foot horizon since start of the drilling campaign set off in Mississippi by discovery of the Tinsley Dome field was Gulf Refining Company's (formerly E. L. Martin) Newell Mineral Lease Company 1, NE NE 5-6n-7e, Scott County wildcat, which was drilling in Glen Rose at 10,360 feet. With elevation of 443 feet, this test topped Tuscaloosa at 5283 feet. Of approximately 725 tests drilled in Mississippi, this is the second to pass 10,000 feet, a hole to this depth having been abandoned several years ago in Covington County soon after gas was discovered at Jackson.

Exchange Oil Company's two latest tests in the Pickens field, Yazoo County, failed to produce at the Wilburn sand level. The company was rigging up Wilburn 5, SW NW SW 32-12n-2e, at 5700 feet to deepen to 9000 feet. The test topped Eutaw at 4805 feet and Wilburn sand at 4868 feet (elevation 236 feet). The company was moving rig from its Wilburn 6, NE NW 31-12n-2e, which was shut down at 5806 feet after topping Eutaw at 4825 feet (elevation 219 feet). The same company made location for a Yazoo County wildcat, A. E. Edgar 1, NW NW 28-13n-1w, to go to 5500 feet.

Gulf Refining Company may abandon Fred Parker 1, SW SE SW 23-19n-7e, Montgomery County wildcat, which ran electric log to 5075 feet, and move to a wildcat block in Attala County. Latest reports showed Parker 1 drilling hard black shale at 5180 feet after topping Eutaw at 1265 feet, Tuscaloosa at 1575 feet and Paleozoic at 4424 feet.

Reser Pennman, Dallas, has leased approximately 100,000 acres for a wildcat test in Tallahatchie County, North Mississippi. Humble Oil & Refining Company is planning an early test on its wildcat holdings in Jefferson Davis County, South Mississippi, about a mile from W. J. Richardson's Maggie Berry 1, CNE NE 15-9n-19w, abandoned last week at 8523 feet in Tuscaloosa, topped at 8427 feet (elevation 428 feet).

Westbrook, Thompson & Stewart, Fort Worth, who have all of Mobile Bay in southern Alabama under lease, approximating 600,000 acres, made location for a test to spud by November 1. Bon Secours Bay 1 is 1000 feet off Little Point Clear, 9s-1e, Baldwin County, and will be an 8500-foot test.

Rocky Mountain States

Badger Basin Deepest Test Under Way at 10,121 Feet

Wyoming has a new deep hole record in the Resolute Oil Company's State 2, CSW SW 16-57n-101w, Badger Basin field, Park County, which is at 10,121 feet preparing to test production. Hole bottoms in the Lakota formation with saturation reported from 10,105 feet to bottom. The hole is rotary drilled by contracting firm of Manning & Martin, Inc., of Denver, who held the former Rocky Mountain depth record in the California Company's Unit 1, Pinedale block, southwestern Wyoming, which drilled to 10,003 feet with rotary.

Completion of drilling of State 2 well marks the second time that Resolute Oil Company at Badger Basin has broken a

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depth record. In October, 1931, discovery well at Badger Basin went to 8725 feet and for a time held the world's depth record for cable-tool drilling. All wells since on Badger Basin have been rotary drilled.

The Hiawatha oil and gas field in Moffat County, Colorado, had its oil productive limits extended a quarter mile south and east this week. The Mountain Fuel Supply Company's Georgia Kuykendall, CSW NW SW 23-12n-100w, pumped 50 barrels initial from sands at 2064-2584 feet through perforations in the 6⅝-inch, with bottom at 2584 feet. The company is drilling at 1438 feet with rotary equipment in Florence Wilson 6, CNW SE 14-12n-100w, a new start in Hiawatha.

Nearing objective, Mountain Fuel Supply Company's Murphy 5-B, CSW NE SW 15-3n-24e, Clay Basin field, Daggett County, Utah, is drilling at 5763 feet with the Dakota gas sand expected within the next few hundred feet.

On the South Baxter Basin gas structure, Union Gas Company's Hummer 1, NW NW NE 6-17n-103w, has cemented-off two gas sands encountered in the Frontier and is changing over to rotary from cable tools with total depth, 2110 feet.

The Ohio Oil Company this week spotted location for a southeast extension test of the Lance Creek field, Niobrara County, Wyoming. State 9, NW SW NW 36-36n-65w, is a southeast offset to State 8, NWc 36-36n-65w, which in May, came in as a surprise completion for 1440 barrels per hour in the Basal Sundance.

A south extension test, located in fault block zone, to the Garland field, Big Horn County, has been spotted by N. B. Kethersaid, who is building rig for Mann 1, SWc, Lot 42-J, 11-55n-97w, 750 feet north of Peay Oil Company's test which encountered good oil production in the Frontier sands, but was unable to complete because of a fishing job. Objective is the Peay sand of the Frontier at around 3250 feet.

New Mexico

Lea County Wildcat Indicates New Oil Area

An oil strike for northwestern Lea County was indicated as Great Western Producers, Inc., State 1-D, near CSE SE 30-12s-32e, filled 2100 feet with fluid from red sand at 3025-35 feet. The fluid column was reported to consist of about 1500 feet of oil and the balance salt water. Seven-inch pipe will be run for a production test. The red sand is a geological marker for the Artesia district, and is about 500 feet above the principal Permian producing level. The Lea County prospect logged top of Yates sand at 2275 feet, with an elevation of 4385 feet. It is a twin location to Weiner and Lou Stogner's 1373-foot junked hole.

Southwest extension for the Vacuum field occurred when the Texas Company's State 3-X flowed natural at rate of 819 barrels of oil daily from saturation at 4560-4710 feet. Great Western Producers, Inc.'s State 1-E, east outpost, was drilling at 3750 feet.

Ventural Oil Company's Lowe 1, northeastern Lea County wildcat, was awaiting orders after fulfilling depth contract at 6000 feet. Deeper drilling will likely result in the outcome of a deep test being given the Wasson field, Texas, nearest producing area.

California

Another Try for Production Being Made at Coal Oil Point

Bolsa Chica Oil Corporation was preparing to drill its fourth wildcat at Coal Oil Point, Section 25-4-29, Santa Barbara County, with Government Permit 191-7. Coal Oil Point is 2 miles southeast of the southeastern tip of the Elwood field, and the test will be drilled from a pier extending into the Pacific Ocean. In addition to three previous wells by the company several other companies have attempted to find production at Coal Oil Point, including Bankline Oil Company, Superior Oil Company and Andrews & McDonald. All tests have encountered some showings but failed to pick up commercial production.

California Securities Company recovered 12 stands of gas-cut frothy oily mud which showed doubtful commercial possibilities when a formation test was run on Schieferle 1, outpost test in Section 17-3-20, South Mountain area of Ventura County. Hole was bottomed at 2408 feet with water string set at 2261 feet. Following formation test, drilling was resumed and last reports showed the well making hole in sand and shale at 2505 feet. It will probably be taken to about 4300 feet.

Kern Line Oil Company has temporarily suspended operations on its test in Section 19-11-19, Kern County, Grapevine area, in order to reinforce the rig before coring ahead. The test is running approximately 340 feet higher on structure than a test drilled in this area by The Ohio Oil Company several years ago. Top of the Chanac was encountered at 2030 feet.

R. E. Havenstrite has bottomed Lincoln 1, wildcat in the Newhall area of Los Angeles County, Section 16-4-17, at 6948 feet in fractured shale, and has cemented the water string at 6650 feet. Best oil sand was logged at 6675-6870 feet. At 6875 feet, a 15-foot shale interval was encountered, and from that point to bottom, core barrel passed through soft formation believed to be oil sand. An early production test is scheduled.

R. R. Bush Oil Company was planning to complete Sentous 1, in the Inglewood-Culver City area of Los Angeles County. Test is bottomed in shale at 8760 feet. On coming out with drill pipe, it flowed oil, mud and gas for 40 minutes before it was killed preparatory to running liner to complete.

Superior Oil Company has completed two Rio Bravo field wells in Kern County, Osborn 1-1 and Pasadena Realty Company 1, each at about 11,500 feet with initial production of 1565 and 1480 barrels daily, respectively. A third project, Rudnick 3, was testing water shutoff at 11,117 feet, preparatory to testing oil sand at 11,178 feet.

Michigan

Berrin County Wildcat Pumps Ten Barrels Daily, 602 Feet

Lakeland Oil Corporation's Plym 1, SW SW NE 1-7s-17w, Berrin County wildcat, temporarily has set a new shallow depth record for oil production in Michigan. The test, only 10 miles north of the Michigan-Indiana state line, is producing a reported 10 barrels daily on the pump from 602 feet. Pay zone is in the Traverse formation, topped at 585 feet, about 50 percent shallower than the Bloomingdale pool in Van Buren County and 400 feet shallower than the Bangor pool, Van Buren County, previously the state's shallowest commercial field.

No new starts had been reported for this potential posthole paradise in Berrien County. Gas estimated up to 50,000 feet per day was reported with the oil. The 10-barrel production was established after acid treatment. Operators are considering taking the test deeper.

Another old field in the Michigan basin entered the news and promised to account for a drilling revival. M. F. Whitehill and Joe Drury's Yager 1, Section 36-17n-2w, Gladwin County, flowed 800 barrels the first 24 hours, and 515 barrels second 24 hours, natural, from 3848 feet, the highest potential ever recorded in the old South Beaverton pool. The Yager well offsets, 540 feet west, a well drilled four years ago that made only 180 barrels after acid treatment. None of the other three wells in the pool did better than 75 barrels after acid. The four old wells were drilled in 1936, along with 10 dry holes. The dry holes ended development until the present test.

First tests after cementing 5-inch casing in Sun Oil Company's McKenna 1, Hamilton Township, Clare County discovery well, appeared to establish bottom hole water. Well pumped as high as 200 barrels of oil, but cut from 3 to 15 percent water. The test which already has accounted for four new drilling wells, two rigs and three locations, originally flowed as high as 1502 barrels in 24 hours, but dropped to less than 300 within a week. Pay was gravel-packed, and casing cemented after operators established that the packer, with which 5-inch was originally set, had been damaged by extended swabbing. It is producing from 3753 feet, 5 feet in Dundee dolomite.

Fishing jobs, blowouts, title troubles and rig breakdowns combined to delay expected follow up completions in the Adams, Arenac County, play, started in mid-July with a 2000-barrel Dundee oil well. Only one test, since the pool opener, has been drilled to the objective formation. It is Smith Petroleum Company's Stone 1, Section 14-19n-3e, ½ mile northeast of the pool opener. Smith's test was 28 feet off structure, logging Dundee at 2887 feet, and finally bottomed at 2998 feet. The company missed the pay from which the discovery is producing, but logged 500 feet of oil in 12 hours at 2968-73 feet. Operators will plug back to 2975 feet and acidize.

UNITED STATES WELL COMPLETIONS

Arkansas

Company, Well and Location	Init. Prod. Bbls.	Depth
Columbia County (Buckner)—		
G. S. Hammond et al, Crone 1, 9-16-22	100	7297
Columbia County (Magnolia)—		
Normandie Oil Corp., Crumpler B-1, 18-17-19	420	7637
Franklin County—		
Ozark Nat. Gas Co., Anderson 1, 32-10n-26w	25	1858
Johnson County—		
Industrial O&G Co., Winningham 1, 5-9n-22w	*	3681
Sebastian County—		
Ozark Nat. Gas Co., Harper 1, 21-8n-29w	¶1½	2690
Union County (Rainbow City-Nick Springs)—		
Fohs Oil Co., Rowland 1, 31-17-14	100	3993
Union County (Urbana)—		
McCresslenn Oil Co., Parker 4, 3-18-13	100	3018

California

Company, Well and Location	Init. Prod. Bbls.	Depth
Fresno County (East Coalinga Eocene)—		
R. S. Lytle, No. 57-18F	2386	1
Kern County (Cole's Levee)—		
Richfield, KCL-A 36-29	537	9160
KCL-B 54-4	642	9630
Kern County (Edison)—		
Goodrum & Vincent, S. P. 6	12	510
Kern County (Mount Poso Area)—		
Signal O. & G. Co., Glide 1	119	2314
Kern County (Round Mountain)—		
Trico O. & G. Co., Coffee 2	*	1394
Kern County (Ten Sections)—		
Shell, KCL-A 21-29	1632	8235
KCL-A 81-30	1145	8210
Los Angeles County (East Coyote)—		
Bryan-Pacific Oil Co., Wallop 1	100	4351
Los Angeles County (West Montebello)—		
Kreiger Oil Co., Caneer 1	*	7620
Los Angeles County (Newhall-Potrero)—		
Barnsdall, RSF 12	1300	7390
Los Angeles County (Rosecrans-Athens)—		
St. Anthony Oil Co., Gordon 4	1150	7825
So. Calif. Pet. Corp., Maxwell 13	300	7592
Los Angeles County (San Fernando)—		
Continental, Howell 2	*	5422
Los Angeles County (Wilmington)—		
Continental, LACFCD 13	316	3140
Fuller Pet. Co., Comm. 1-A	315	3684
San Willis Oil Co., Pet. Management 10	300	3722
Union Pacific, UP 151	155	4010

Illinois

Company, Well and Location	Init. Prod. Bbls.	Depth
Bond County—		
Max Pray et al, Gilham Church 1, ne nw ne 9-6n-2w	*	1065
Clinton County—		
Williams et al, Dunn 3, ne sw nw ne 1-1n-1w	64	1340
Fotiades, McHenry 1, ce½ se nw 2-1n-1w	775	2914
Criley 2, cw½ sw ne 2-1n-1w	789	2910
Arcadia Roy. Co., Knolhoff 4, sw sw se 2-1n-2w	46	1325
Benoist et al, Knolhoff 7, sw se se nw 11-1n-2w	55	1324
Dick Duncan, Knolhoff 5, cn½ nw nw 11-1n-2w	*	1337
Knolhoff 6, nw nw nw 11-1n-2w	25	1212
Thompson Drlg. Co., Knolhoff 1, nw c sw 11-1n-2w	25	1200
Santa Fe Pet., Maddox 2, sw se sw 4-1n-3w	325	2419
Adams O&G, Copple 24, sw ne se sw 35-2n-1w	100	1371
Edwards County—		
Noah & Morrison, Works 2, ne se se 13-2s-10e	1320	3116
Superior, Scott 1, se se ne 36-2s-10e	*	5156
Fayette County—		
Whisenant, Bolburg 1, nw ne se 34-5n-1e	*	1895
Ohio, Williams 10, sw nw se 36-6n-2e	70	1613
Texas, Yakel 7, ne ne sw 6-6n-3e	154	1573
Wright 12, ne ne sw 31-6n-3e	169	1612
Carter, Owen 3, nw se sw 8-7n-3e	144	1586
McCormick 12, nw sw ne 18-7n-3e	162	1521
McFadden 2, nw sw sw 10-8n-3e	516	1594
Gregg 2, se ne sw 13-8n-3e	144	1508
Beck-Dial 2, ne se sw 35-9n-3e	84	1539
Jasper County—		
Johnson Oil Refg. Co., Mendenhall 1, sw sw se 17-8n-10e	175	2607
Jefferson County—		
Tex Harvey, Green 1, ne sw se 13-4s-1e	*	3012
Macoupin County—		
Paul Miller, Crabtree 1, sw se sec 1-10n-6w	*	720
Marion County—		
Gibson & Jennings, Phillips 5, nw se sw nw 7-1n-2e	120	2085
Shell, Young Hrs. 2-C, ne nw ne se 20-2n-2e	64	2245
Henshaw Bros., Walker Est. 1, nw se ne 4-3n-1e	*	1515
Tex Harvey, Kagy Comm. 1, ne se ne se 33-3n-2e	25	2250
Texas, Carr 11, se nw nw ne 5-1n-2e	129	2195
Hawkins-Johnson 2, se nw se sw 5-1n-2e	1010	3471
Richardson 13, nw sw nw sw 5-1n-2e	973	2212
Bundy 13, nw nw ne 6-1n-2e	350	3462
Canull 25, cw½ se ne 6-1n-2e	77	2225
Johnson 17, ce½ sw se 6-1n-2e	175	2230
Johnson 25, cw½ nw se 6-1n-2e	499	3460
Johnson 35, cw½ ne se 6-1n-2e	154	2225
Friedrich 19, cn½ se ne 8-1n-2e	105	2155
Fyke 8, nw sw se 8-1n-2e	175	1926
Hawkins-Comm. 7, cw½ se nw 8-1n-2e	805	3514
Hawthorne 37, nw se nw ne 8-1n-2e	108	2241
Stroup 24, sw se nw 31-2n-2e	90	2313
Stroup 25, sw se sw nw 31-2n-2e	75	2420
Stroup 26, sw ne nw 31-2n-2e	150	1825
Stroup 27, se nw se nw 31-2n-2e	75	1815
Tate 26, sw se sw 31-2n-2e	60	3511
McConnoughhay 9, se se se 32-2n-2e	120	2400
Pope County—		
Gardenshire & Smith, Peoples 1, cse se 19-11s-5e	*	1397
Shelby County—		
Lester Walker, Odell 1, ce½ se nw 20-14n-2e	*	2253
Wabash County—		
L. V. Garnier, Westall 1, se ne nw se 17-1n-13w	*	2820
Big Chief, Peach 3, ne sw sw 34-2n-13w	295	2688
Mabee O&G, Schultz 1, se se ne 8-2s-13w	21	2451
Continental Oil Co., Schultz 6, ne ne se 8-2s-13w	51	2466
Schultz 2, ne ne nw 30-2s-13w	25	1732
Washington County—		
Magnolia, Rahn 3, sw nw nw 23-1s-1w	100	1547
Tiemann 7, sw sw sw 23-1s-1w	43	1552
Shell, Brown 2, cse se nw 23-1s-1w	110	1553
Langel 2, nwc sw nw 23-1s-1w	85	1549
Gulf, Stanton 4, nw nw nw 26-1s-1w	97	1557
Wayne County—		
J. W. Sanders, Cooper 1, ce½ ne nw 2-1n-7e	*	3084
McClusky, Skelton 1, cw½ ne nw 21-2n-8e	35	2864
Pure, Staley Cons 1, ce½ sw ne 24-2n-7e	54	3070
Brissenden 3, cw½ ne se 32-2n-8e	1096	3090
Carl Robinson, Williams 1, n½ ne sw 29-1s-5e	*	3087
H. Scott et al, Cornick 2, se sw sw 4-2s-7e	1000	3322
H. H. Weinert, Cornick 2, se sw ne sw 4-2s-7e	1221	3288
Rockhill, Twist 7, sw nw sw 33-2s-7e	126	3400

[*Continued on next page*]

Summary of Drilling Operations in the United States, Week Ended September 5, 1940

	WELLS COMPLETED							PERMITS FOR NEW WELLS*				
	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1940	Total this Date 1939	This Week	Total this Month	Total 1940	Total this Date 1939	Year Total 1939
Alabama	.....	.....	.....	.....	.....	4	1	.....	.....	.....	.....	.....
Arizona	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arkansas	7	4	2	1	720	132	172	3	3	100	160	223
California	19	15	1	3	10,409	788	735	24	24	741	721	1,174
Colorado	.....	.....	.....	.....	.....	5	15	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Illinois*	76	63	.....	13	18,123	2,760	2,608	86	86	3,111	.....	893
Indiana	14	7	.....	7	1,988	318	134	.....	.....	.....	.....	.....
Kansas	62	49	1	12	69,310	1,388	956	42	42	1,411	1,052	1,583
Kentucky	10	4	1	5	253	234	456	.....	.....	.....	.....	.....
Louisiana	31	22	3	6	4,242	1,166	716	22	22	1,093	902	1,449
Michigan	18	6	2	10	1,380	852	1,006	21	21	785	974	1,419
Mississippi	2	1	.....	1	3,072	131	11	.....	.....	.....	.....	.....
Missouri	2	.....	1	1	.....	15	.....	3	3	7	.....	.....
Montana	4	2	1	1	118	122	105	.....	.....	1	.....	.....
Nebraska	2	1	.....	1	750	10	1	1	1	9	.....	.....
New Mexico*	11	8	.....	3	1,360	481	430	8	8	434	74	293
New York†	16	16	.....	.....	51	719	392	.....	.....	.....	.....	.....
North Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	27	7	11	9	301	651	640	.....	.....	.....	.....	.....
Oklahoma	36	22	2	12	6,530	1,499	1,433	25	25	1,270	1,424	2,059
Pennsylvania†	71	62	6	3	55	2,604	1,090	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....
Texas	160	119	5	36	70,284	7,157	6,727	217	27	7,985	7,180	10,269
Utah	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
West Virginia	20	3	14	3	7	392	366	.....	.....	294	417	718
Wyoming	1	1	.....	.....	350	103	97	.....	.....	.....	.....	.....
Total this week	589	412	50	127	189,303	21,543	18,079	452	452	17,241	12,904	20,080
Total last week	587	412	49	126	189,947	20,954	17,630	375	2,017	16,789	12,673	20,080
Total this year	21,543	15,747	1,184	4,612	7,748,993	.....	.....	.....	.....	.....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Illinois date from October 15, 1939; New Mexico from August 1, 1939. Data for Kansas, Missouri, Montana, Nebraska and New Mexico are first reports of new wells, rather than actual permits.
† Includes water-input wells.

United States Well Completions—*Continued*

ILLINOIS—Continued

White County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Cook Oil Co., Pollard 1, sw sw nw 28-3s-9e	245	3421
Sun, Greathouse 10, ne sw se 33-4s-14w	200	2592
Wiser Oil, Chapman 1, se se sw 23-6s-8e	1150	3163
Shell, Raney 1, sw nw se 24-6s-8e	•	2520
Mercer Bros., Chapman 2, se ne nw 26-6s-8e	1234	3114
Eason Oil, Powell 1, nw nw ne 22-6s-9e	150	2260
Exchange & Ohio, Rudolph 9, se nw sw 12-6s-9e	109	2275
A. J. Walker, Storms 1, nwc se ne 22-6s-9e	120	2254
Storms 2, sw nw se ne 22-6s-9e	75	2252

Indiana

Boone County—

Company, Well and Location	Init. Prod. Bbls.	Depth
N. N. Smith, Marshall, nwc ne 34-19n-2e	•	1825

Gibson County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Lewis Prod. Co., Cooper 1, nwc ne nw 19-3s-13w	97	2111
Papoose, Cooper 11, nw ne sw 13-3s-14w	398	2500
Continental, Bozeman 10, se ne ne 23-3s-14w	634	2529
Keck 7, sw se se 27-3s-14w	144	2555
Turbeyville & Schoonmaker, New Harmony Bank 1, sw se nw 27-3s-14w	65	2911

Porter County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Norris & Brown et al, Biggs 2, nw sw nw se 19-36n-5w	•	370
Joe Bander, Jones 1, nec se sw 20-36n-5w	•	391

Posey County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Ray Ryan, Keck Hrs. 6, nw nw nw 34-3s-14w	600	2890
Superior, New Harmony Realty 28, nw ne se sw 10-5s-14w	•	3040
Sun, Deitz 2, nw sw se 1-7s-12w	50	1911
H. K. Riddle, Greathouse 1, ne ne ne 13-7s-15w	•	2208

Spencer County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Bowen Hoover, Rothert 1, swc nw nw 1-5s-6w	•	1241

Whitley County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Michiana O&G, Bailey 1, ne sw 3-30n-8e	•	1375

Kansas

Barton County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Solar, Schartz 2, cs½ sw ne 18-16-11w	•	3283
B. B. & M., Esfield 4, cn½ sw se 28-16-11w	3000	3381
Sharon et al, Luerman 2, cn½ se se 18-16-13w	•	3380
Shell, Schneider "A" 4, csl se ne ne 12-16-14w	3000	3340
Imo O&G Co., Everleigh 1, ce½ sw ne 3-18-14w	•	3390
Lario et al, Reiser 2, cn½ ne nw 23-20-11w	1887	3292

Butler County—

Company, Well and Location	Init. Prod. Bbls.	Depth
McDaniel, Eckel 1, nw ne nw 7-27-7e	40	2184
Simpson, Houston 1, cw½ nw sw 15-28-7e	423	2658
Sooby et al, Evans 1, nwc ne 8-29-4e	•	1878
Jocelyn-Murfin et al, Hall 1, cs½ ne sw 7-29-7e	•	3320

Cowley County—

Company, Well and Location	Init. Prod. Bbls.	Depth
W-K Royalty, Ferguson 9, nw ne sw 21-30-8e	20	2164
McKnab et al, McKnown 1, nec sw 31-33-5e	•	3245
Snyder 1, cw½ nw nw 15-34-3e	40	3345

Ellis County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Dickey, Husted 4, cs½ nw sw 18-11-17w	3000	3342
Deep Rock, Baumer 29, se ne se 27-11-17w (OTD 3463)	144	3474
Tidewater, Riddler 3, sw se sw 1-11-18w	3000	3441
Phillips, Peavey 5, cs½ nw se 13-11-18w	3000	3402

Ellsworth County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Skelly, Adamek 1, cw½ sw nw 5-16-10w	•	3336
Stanolind, Stoltenberg 1, ce½ se nw 21-16-10w	•	3373
Atlantic et al, Stoltenberg "E" 2, cs½ nw se 27-16-10w	1436	3296
Skelly, Meyer 1, cs½ sw ne 35-16-10w	3000	3298
Ash et al, Wilkens "B" 2, cn½ nw sw 18-17-9w	1009	3269
Splitter 2, cn½ ne sw 19-17-9w	3000	3230

Greenwood County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Blankenship et al, Westbrook 1, ne nw sw ne 17-28-11e	40	1228
Creel et al, Saunders 1, nwc ne 17-28-11e	30	1235
Reed et al, Blevins 1, nw nw se ne 17-28-11e	40	1226
Dove 3, cw½ ne ne 17-28-11e	15	1216
Shewmaker et al, Talmon 1, nwc ne 17-28-11e	15	1233

Marion County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Aladdin, Temple 4, sw se sw 12-19-2e	50	2857

McPherson County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Aladdin, Young 1, cs½ se sw 36-19-1w	•	3366
Cities Service, Nyquist 1, cn½ ne nw 19-20-5w	34	3345
Crosbie, Briggs 2, ce½ se sw 20-20-5w	240	3397
Nadel et al, Mattson 1, cw½ nw ne 29-20-5w	•	3407
Moulton, Bornholdt 3, cn½ sw se 30-20-5w	3000	3338
Sunray, Mattson 4, ce½ sw ne 30-20-5w	48	3362

Pratt County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Skelly et al, Armstead 1, nw sw nw se 2-28-11w	¶27.75	4198

Reno County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Transwestern, Teten 8, ne swc se 12-23-4w	582	3429

Rice County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Transwestern, Roesler 3, cs½ se nw 6-18-10w	3000	3237
McPherson Dr. Co., Cramm "D" 1, sec sw 15-19-9w (OTD 3201)	335	3160
Central Petroleum et al, Duvall 1, cn½ se ne 13-20-6w	58	3340
Westgate-Greenland, Johnson 3, cs½ ne se 24-20-6w	15	3362
Helmerich & Payne, Harold 1, cwl nw ne sw 31-20-7w	49	3327
Hall et al, Wagner 1, cw½ sw ne 16-20-10w	35	3416
Duwe & Farris et al, Hutchins 1, cw½ sw se 29-21-8w	•	3700

Rooks County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Cities Service, Buell 1, cn½ ne sw 10-9-16w	3000	3495
Broadview et al, Livengood "A" 3, cs½ sw nw 11-9-16w	3000	3210
Mitchell et al, Brown 1, cwl nw ne se 14-9-16w	102	3338

Russell County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Stewart, Bronson 1, nw ne se 20-11-15w	75	3208
Continental, Rein "A" 3, cs½ ne sw 27-14-13w	1503	2943
Stanolind, Boxberger 6, cwl ne ne sw 14-14-14w	•	3253
Cities Service, Crawford 16, nwc sw 2-14-15w (OTD 3291)	3000	3050
Pryor & Lockhart et al, Davidson 1, ce½ ne nw 12-15-11w	•	3321
Cities Service, Schartz 1, ce½ se ne 5-15-12w	3000	3186
Redetzke 2, sw ne ne 21-15-13w	72	3334
Carter, Sellens 3, cel ne nw sw 17-15-13w	328	3325
Republic Nat., Ressler 3, ce½ nw sw 23-15-14w	243	3335
Mid-Continent, Ochs 6, swc ne 35-15-14w	402	3338

Stafford County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Skelly, McNickle 2, cn½ sw se 2-24-11w	3000	3760
Deep Rock, Henry 1, ce½ se sw 3-24-11w	3000	3798
Transwestern, Johnson 2, cw½ se se 3-24-11w	3000	3769
Stanolind, Richardson 2, ce½ se nw 10-24-11w	3000	3800
E. H. Moore, Johnson 1, sw nw ne 13-24-11w (OTD 3782)	3000	3813
Sinclair Prairie, Krey 5, ne nw ne 14-24-11w (OTD 3776)	3000	3815

Kentucky

Daviess County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Andy Teller, Conners 2	150	1282
J. C. Ellis et al, O'Flynn 8	78	1184
Master Oil Co., Bennett 2	15	1560
W. E. Hupp, Lain 1	10	314

McLean County—

Company, Well and Location	Init. Prod. Bbls.	Depth
J. R. Mace, Gross Heirs 1	•	2080

Ohio County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Thrasher & White, Turnham 2	•	413
Ohio, Oller 1	•	2503
Sohio, King 1	•	884
H. H. Vickers et al, Kirk 3	•	554
W. M. Hunt et al, Nelson 1	¶.1	336

North Louisiana

Bossier Parish (Sligo)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Triangle Dr. Co., Roy A-3, 18-17n-11w	100	3151

Caddo Parish (Pine Island)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Ce-Beth Oil Co., Ober 2, 36-21n-16	35	2274
W. B. Johnson Dr. Co., Stiles 1, 22-21n-16w	40	2445
E. E. Johnson, Petroleum Dev. Corp. 2, 32-21n-15w	30	1540
Pelham Oil Corp., Bickham 4, 28-21n-15w	65	1510
Stanolind, Head B-1, 26-21n-15w	10	1573
Rowland Savage et al, Mansfield Oil Co. A-4, 1-20n-16w	20	1536

Franklin Parish (Wildcat)—

Company, Well and Location	Init. Prod. Bbls.	Depth
J. B. White et al, Dailey 1, 1-11n-6e	•	3016

La Salle Parish (Olla)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Arkansas Fuel Oil Co., Hopkins Unit A-1, 12-10n-2e	160	2235
Placid Oil Co., La Central Lbr. Co. 15, 13-10n-2e	130	2410
La. Central Lbr. Co. 27, 25-10n-2e	140	2404
La. Central Lbr. Co. 29, 19-10n-3e	150	2409

Morehouse Parish (Monroe)—

Company, Well and Location	Init. Prod. Bbls.	Depth
United Carbon Co., Anderson 2, 41-21n-5e	¶2.0	2276

Ouachita Parish (Monroe)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Interstate Nat. Gas Co., Fee 101, 44-19n-3e	¶3.25	2184

Sabine Parish (Wildcat)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Shell, Pickering Lbr. Co. 1, 30-4n-12w	•	7562

Union Parish (Monroe)—

Company, Well and Location	Init. Prod. Bbls.	Depth
N. & W. Corp., Thompson et al 1, 29-21n-3e	¶1.0	2215

South Louisiana

Barataria—

Company, Well and Location	Init. Prod. Bbls.	Depth
California, Community B-2	480	8773

Bayou Blue—

Company, Well and Location	Init. Prod. Bbls.	Depth
Markley & Crosby, Baiste Coop. 4	190	1772

Bayou Des Glaises—

Company, Well and Location	Init. Prod. Bbls.	Depth
Humble, Wilberts 2-B	•	8727

Cameron Meadows—

Company, Well and Location	Init. Prod. Bbls.	Depth
Magnolia, Cameron Lds. 28	210	6950

Charenton—

Company, Well and Location	Init. Prod. Bbls.	Depth
Pan-American, Hunt 2	150	3705

Golden Meadows—

Company, Well and Location	Init. Prod. Bbls.	Depth
Texas, State 9	•	2816
Marr & Vaughn, B&D Unit 2	Icn	....

Grand Lake—

Company, Well and Location	Init. Prod. Bbls.	Depth
Superior, State 15	285	8398

Neale—

Company, Well and Location	Init. Prod. Bbls.	Depth
Atlantic Refining, Kay 1	280	8376

New Iberia—

Company, Well and Location	Init. Prod. Bbls.	Depth
Texas, Duhe 18	259	3860

Paradis—

Company, Well and Location	Init. Prod. Bbls.	Depth
Texas, LL&E 5	844	11,195

Raceland—

Company, Well and Location	Init. Prod. Bbls.	Depth
Amerada, South Coast 6	130	10,170

South Roanoke—

Company, Well and Location	Init. Prod. Bbls.	Depth
Continental, Krielow 1	•	9882

Ville Platte—

Company, Well and Location	Init. Prod. Bbls.	Depth
Continental, Ludeau 1	178	10,230

West Lake Verrett—

Company, Well and Location	Init. Prod. Bbls.	Depth
Shell, Jeanerette 5	356	8832

Michigan

Allegan County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Lang & Lewis, Spau 1, ne se ne 1-2n-13w	•	1678
Sprenger Brothers, Miller 1, se se sw 11-3n-13w	•	1745
Marian Joure, Fee 1, ne se se 28-4n-14w	•	1674
Douglass Dev. Co., Crane 1, se ne se 17-3n-16w	•	2000

Barry County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Homer Fulton, Federal Bank 1, ne nw se 6-1n-8w	•	1929

Berrien County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Lakeland Oil Co.'s Plym 1, sw sw ne 1-7s-17w	10	602

Clare County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Turner Pet. Corp., Vetr 1, cs nw nw 35-19n-6w	•	3948

Gladwin County—

Company, Well and Location	Init. Prod. Bbls.	Depth
M. F. Whitehill, Yager 1, se nw ne 36-17n-2w	800	3840
Sun, Cameron 2, ce se se 10-18n-2w	85	3839

Isabella County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Pure Oil, Embrey B6, nw se nw 3-14n-6w	45	3608
J. V. Wicklund Dev. Co., Leosh 3, sw se se 8-16n-3w	90	3715
McClanahan & Whites, Nixon 6, se sw ne 17-16n-3w	350	3738

Missaukee County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Taggart Brothers, Koster 36, cse 20-21n-7w	¶5.5	1425

Monroe County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Dougherty & Markey, La Voy 1, nw nw nw 32-7s-6e	•	2150

Montcalm County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Belvidere Oil Co., Jorgensen 1, sw ne ne 14-12n-6w	¶9	1245

Oakland County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Fisher-McCall, Moshier 1, sw sw sw 15-5n-9e	•	2735

Ottawa County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Jack Lowry, Wienan 1, cs se se 24-8n-15w	•	1841

Van Buren County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Hudson & Pott, Overton 1, nw se nw 20-2s-16w	•	1015

Mississippi

Jefferson Davis County (Wildcat)—

Company, Well and Location	Init. Prod. Bbls.	Depth
W. J. Richardson, Mary Berry 1, 33-13n-2e	•	8523

Yazoo County (Tinsley Dome)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Magnolia Pet. Co., J. J. Milner 2, 6-10n-2w	3072	5410

Missouri

Adair County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Ettington et al, Kapps 1, swc 31-64n-15w	•	1163

Caldwell County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Evans et al, Arnote 1, se ne 36-55n-29w	¶1.75	425

United States Well Completions—*Continued*

MONTANA

Glacier County (Cut Bank)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Texas Co., Hinkle 7, ne nw ne 2-34n-6w	103	2825
Bonnett 3, cne se 8-32n-5w	*	3005

Toole County (Kevin-Sunburst)—

Montana-Dakota Utilities Co., Seward 3, cne se 34-34n-1w	¶2.0	1250
Texas Co., Bruins 14, ne ne se 9-35n-2w	15	1631

Nebraska

Nemaha County—

Garden et al, Ord 1, cnw nw 8-5n-14e	*	3110

Richardson County—

Pawnee, Boice 1, cne ne 18-1n-16e	750	2286

New Mexico

Eddy County (Wildcat)—

May Weathers et al, Flood 1, cse se 24-18s-23e	*	1740

Eddy County—

Aston & Fair, State 5-B, nw sw sw 32-17s-30e	95	2868
Butler-Horne Dr. Co., Iles 1, ne se sw 17-16s-29e	*	1955
B. H. Nolen-Dave Elder, Hess 1, nw sw nw 21-16s-29e	*	3163
Premier Pet. Corp., Beeson 7-F, se ne ne 31-17s-30e	54	2845

Lea County (Arrowhead)—

Gulf Oil, State-Mark 1, cnw ne 3-22s-36e	25	3735

Lea County (Penrose)—

Mid-Continent Pet. Corp., Owens 2, cne nw 3-22s-37e	15	3936
N. G. Penrose-J. C. Clower, Walden 1-B, cw½ nw sw 15-22s-37e	204	3738
Rowan Dr. Co. et al, Elliott 1-B, ne se se 29-22s-37e	79	3628

Lea County (Vacuum)—

Texas Co., State 3-X, c se ne 3-18s-34e	819	4710

McKinley County (Hospah Dome)—

Petroleum Prod. Corp., Hospah 10, cel se sw 36-18n-19w	69	1665

New York

Allegany County—

R. B. Moore No. 6, Daniels farm, Bolivar	5	1380
Messer Oil Corp., Miles farm, Bolivar	10	1421
Porge Oil Co., Anderson farm, Alma	8	1453
Chenunda Creek Oil Co., Richmond farm, Willing	5	1070
Bradley Prod. Corp., Monder farm, Alma	5	1346
H. W. Patterson, Coyle farm, Amity	5	825
F. J. Wilson, Burdick farm, Wirt	6	1436
Bradley Prod. Corp., Coats farm, Wirt	7	1342

Water Intake Wells—

Messer Oil Corp., Courtney Hollow farm, Genesee	..	1360
Courtney Hollow farm, Genesee	..	1382
New York Oil Co., Brown farm, Bolivar	..	1432
S. G. Ball & R. Potter, Gowdy farm, Scio	..	1355
Dick Oil Co., Cameron farm, Bolivar	..	1416
Bradley Prod. Corp., Monder farm, Alma	..	1327
L. H. Thornton et al, Fassett farm, Willing	..	1255
Scio O. & G. Co., Fuller-Ockerman farm, Amity	..	749

Oklahoma

Caddo County—

Pace, Wray 2, se sw ne 6-5n-9w	*	4206
Ohio, Lackey 7, ne sw nw 11-5n-9w	1065	3387
Rigney 4, c w½ sw se 12-5n-9w	883	3342
Magnolia, Medrano 8, nw nw sw sw 36-6n-10w	374	3453

Creek County—

Tibbins, Judeman 1, nw sw nw 9-14n-10e	20	3192
Eagle, Cheatham 1, se sec 35-17n-9e	*	3314

Hughes County—

Walker et al, Hawthorn 1, swc se 19-7n-10e	*	1110
Ellison et al, Byrd 1-A, ne se se 4-9n-11e	*	3826
Scruggs et al, Hamilton 1, c sw sw 7-9n-11e	*	2215

Jackson County—

Gulf, Herbert 4, ne se se 9-1n-20w	60	1530

Lincoln County—

Royalty Service Co., Cargill 1, c ne sw 9-13n-6e	*	4137
Viersen, Bell 1, sw swc ne 5-14n-5e	44	3527

Noble County—

Helmerich & Payne et al, Fireshaker 1, sec ne 11-24n-3e (PB 3970)	*	4184

Okfuskee County—

Seran, Fee 5, nw sw nw 2-11n-8e	1000	3544
Snyder et al, Berryhill 3, ne ne se nw 35-11n-9e	15	1495
Droppleman, Dill "B" 2, nw sw sw 35-12n-8e	1080	3556

Oklahoma County—

British-American, Green 1, se swc 23-12n-3w (OTD 6456)	175	6508
Phillips, Anthony 1, nw sec sw 27-12n-3w	575	6605

Okmulgee County—

Wilson, Corbray 4-A, ne se sw se 22-14n-14e	*	1170
Sheridan, Hayden 1, ne ne nw sw 4-15n-12e	*	2626
Young, Anderson 1, ce½ ne se 6-15n-14e	¶2.5	1316
Klinginsmith, Graison 20, sw ne se nw 35-16n-11e	50	2787

Osage County—

Stanolind 9, cn½ n½ se 18-27n-8e	115	2498
Ross 2, ne ne se sw 22-28n-10e	3	1383
Marthann 5, ne ne se nw 3-28n-11e	20	970

Pawnee County—

Benedum & Trees, State 1, sw nw nw 13-21n-6e	*	3362

Payne County—

Helmerich & Payne et al, Collins 3, cw½ ne nw 13-17n-1e (OTD 4891)	49	4720

Pontotoc County—

Zumbro, Owenty 3, ne se sw 21-3n-4e	*	1072
Superior, Indian 1, nec nw 36-5n-4e (OTD 2583)	197	2665
Summers 7, ne sw nw 36-5n-4e (PB 2654)	*	2776
Kerlyn, Chism 1, nw se se 24-5n-6e	¶11.0	1956

Pottawatomie County—

J. F. Smith, Brown 1, ne se ne 6-7n-4e	277	3993
Dunnett, Rodgers 3, se ne sw 31-11n-4e	345	4485
Magnolia, Studer 1, nec 5-11n-6e	163	3282

Tulsa County—

Colpitt, Brown 4, ne nwc sw 5-16n-14e	5	1495

Wagoner County—

Schmidt, Porter 6, nw ne se sw 23-17n-15e	15	1038

Ohio

Ashland County—

Ohio Fuel Gas, McDowell 1	¶0.16	2901

Athens County—

Bowman, Buday 1	¶0.06	1625

Holmes County—

Bell Bros., Balder 1	¶0.07	776

Licking County—

McClay, Porter 7	70	3045
Baker 2	¶0.15	2365
Everett Co., Romine 1	35	2928
Moran, Fairall 1	15	2802
Rex Roth Oil Co., Walthole 1	8	729
Ruy L. Shrider et al, McKinney 3	3	521
Davis, Dye 1	¶1.9	2685
Willey, Clouse 1	¶1.25	2476
Dowler, Paramore 1	¶0.55	2331
Ohio Fuel Gas, Samuelson 1	*	2538
Stewart 1	*	2523

Medina County—

Wagner et al, Stoskoph 1	¶0.12	2784
Preston Oil Co., Packard 5	*	519

Meigs County—

Proffitt, Burn 1	*	540

Monroe County—

Robinson, Miracle 1	*	1479
Christy et al, Haught 8	*	820

Morgan County—

Harris, Harris 4	*	1098

Muskingum County—

Ohio Fuel Gas, Ayers Mineral Co. 1	¶9.2	3794
Gas Prod. Co. of Ohio, Finley 1	¶3.5	4072

Noble County—

Lumbatis, Dotson 1	¶	1910

Perry County—

Preston Oil Co., Hynus 1	120	2692
Pure, Hull 2	50	3287
Hoover, Kishler 1	*	936

Tuscarawas County—

Brendel, Aken 1	*	1274

Pennsylvania

BRADFORD DISTRICT

Penn Valley Crude Oil Corp., Fee	1	....
Mix Creek Oil Co., Fee	1	....
Bradford Tr. Co., 26 wells	26	....
Lincoln & Brink, Connelly	3	....
Forest Oil Corp., 2 wells	2	....
Forest Pet. Corp., 2 wells	2	....
Niagara Oil Corp., 5 wells	5	....
Valley Pet. Corp., Fee	2	....
J. W. Coast, McCaffery & Coast	½	....

Water Intake Wells—

Boyle Camp & Raymond, Bing 392	.	....
Andrus & McDowell, Bing 326	.	....
Pine Run Oil Co., Bing 130-1-2-3-4-6 2 wells	.	....
Forest Oil Corp., 2 wells	.	....
Forest Pet. Corp., 2 wells	.	....
Niagara Oil Corp., 5 wells	.	....

MIDDLE DISTRICT

H. L. Helschel, H. L. Helschel	1	....
Exchange Bank & Tr. Co. of Franklin, Whieldon	4	....
W. E. Fertig, Fertig	1	....
D. V. McCarthy, Holcomb	1	....
Ebenezer Oil Co., Emerson	1	....
Bradley Prod. Corp., Monder	1	....
Ford Oil Co., Margeson	1	....
Sage Oil Co., Bradley	1	....
H. W. Patterson, Coyle & Whitney	1	....

BUTLER ARMSTRONG DISTRICT

Graff-Kittanning Clay Products Co., Graff heirs	¶	....
Northeim & Co., Floyd Mahan	*	....

NEW YORK PENN GAS FIELD

Galey & Duff, James Tennis heirs	*	....

SOUTHWEST PENNSYLVANIA

Clarion County—

T. W. Phillips G&O Co., Brown 3	¶0.05	2871
Owens Illinois Glass, Aites 1	*	2470

Greene County—

Wahler-Powers O&G Co., Provins 1	¶0.94	1234
I. S. White et al, Strosnider 1	¶0.88	3273

Indiana County—

T. W. Phillips G&O Co., Liszenski 1	¶0.6	1705
J. C. Rinn, Perdon Hrs. 2	¶	3690

East Texas

Kilgore Area—

American Liberty Oil Co., Sabine River 43, Tr No. 5 (167.4-ac)	5500	3542
J. R. Sharp et al, Russell 2	1200	3552

Longview Area—

Marine Prod. Co., York 7 (41.4-ac)	1500	3560

Anderson County (Long Lake)—

Hunt Oil Co., Anderson 2 (154.8-ac)	96	5360

Camp County (Wildcat)—

Harry Moss-Delta Dr. Co., Venters 1	152	8087

Freestone County (Cayuga)—

Stanolind, Moody 2 (120-ac)	200	4025

Leon County (Buffalo)—

Lone Star Gasoline Co., Taylor 1 (100-ac)	¶56.0	5780

Limestone County (Wildcat)—

S. J. Taylor-Lytle & Phillips, Reid 1	*	6126

Limestone County (Mexia Shallow)—

John Phillips et al, Pink Bates 1	*	1115

Navarro County (Wildcat)—

W. E. McKinney-C. W. Killough, James 1	*	3321

Titus County (Talco)—

Humble, A. J. Blalock 4 (62 1/3-ac)	518	4337
Phillips Bros. 3	171	4366

Upshur County (Wildcat)—

A. C. McGahey-R. T. Myers et al, L. Turner 1	*	4211

Van Zandt County (Wildcat)—

F. B. Paine Dr. Co.-F. Shackelford, Combs-Oliver 1	*	4607

Shelby County (Joaquin)—

Union Prod. Co., Garrett A-1, Wm. Moody sur	¶144.0	4995

North Texas

Archer County (Hull-Silk)—

Continental, Wilson-McCrory	776	4382
Cox & Hamon, Nichols 1	433	4428
R. P. Dorian et al, Wilson 1	555	3804
Gulf, P. Siegel 21	660	3800

Archer County—

L. T. Burns et al, Perkins 2-F	10	1474
Panhandle Ref. Co., Green 48-B	4	1123
M. R. Stipe et al, Justice 11	*	1078

Baylor County (Wildcats)—

Jack Prince et al, Farmer 1	*	3132
Texas Co., Clement 1	*	1541

Montague County (Bonita)—

Sinclair Prairie, Admire 1	*	5700

Montague County (Wildcat)—

W. H. Peckham et al, Lawson 1	*	6133

Wichita County (K-M-A)—

W. H. Hammon et al, McCarty 16-G	344	3840
F. W. Merrick, Jones 6	680	4106
W. B. Omohundro et al, Love 5	608	4088

Wichita County—

C. E. Beavers et al, Perkins 2	10	1472
C. O. Davis et al, Jones 8	*	635

Young County—

C. B. King et al, Dailey 7	*	641
Scott & Graham, Thompson 1	*	349

Texas Gulf Coast

Caplen—

Sun, Cade 4	158	7578

Hillje—

Texas, Haggard 2	81	5230

Hardin—

Humble, Rye 2	104	7620

Humble—

Texas, CO&G Fee 35	82	2815

Lovell's Lake—

Humble, Broussard 23	176	7724

Magnet—

Humble, Cockburn 8 (wo)	27	5547

Pickett Ridge—

Texas, Pierce 41-A	42	4819

Raccoon Bend—

Humble, Bellville School 9	84	3175

Thompsons—

Blaffer, Davis 8	540	5426

Tomball—

Humble, Reid 19	352	5546

West Beaumont—

Stanolind, Keith-Dowlin 11	70	5403

West Columbia—

Texas, Phillips 15	550	5640

Withers—

Texas, Pierce B-59	70	5394

United States Well Completions—*Continued*

South Texas

CORPUS CHRISTI DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Brooks County—		
Humble, McGill Bros. 69 (Kelsey)	500	4727
Hidalgo County—		
Phillips, Salinas 3 (Samfordyce)	900	4138
Royal O.&G. Corp., Paula Salinas de Flores 1, (Samfordyce)	300	4830
Jackson County—		
Humble, L. Ranch Co., 2-A (Lolita)	1250	5941
Magnolia, Schuech 4 (West Ranch)	1300	5771
Turner 2 (West Ranch)	1350	5767
Susie Ward 3 (Lolita)	500	5929
West 99-A (West Ranch)	1275	5788
Stanolind, American Nat'l Realty Co. 1 (WC) Richard Grimes sur.	*	9010
Jim Wells County—		
Atlantic Ref. Co., Blashke 1-B (Orange Grove)	400	5217
Mueller 3 (Wade City)	400	4793
Rodney Delange, McNeill 13 (Wade City)	750	4942
McNeill 19 (Wade City)	500	4932
Rodney Delange & W. Earl Rowe, McNeill 3 (Wade City)	700	4935
Henshaw Bros., Schrade 2 (Wade City)	500	4945
F. J. Hynes et al, Cocke & Lawrence 1 (WC) Walt F. Rice sur.	*	5405
T. H. McElvaine, Blashke 2 (Orange Grove)	500	5080
Plymouth Oil Co., Boehm 2 (Orange Grove)	500	5112
Live Oak County—		
Edwin M. Jones, George West Est. 2-B (WC) G. L. Haas sur 59	*	3626
Marion Prod. Co., Lark 1 (WC) blk 69	*	1085
Nueces County—		
Sinclair Prairie, State-Nueces Bay 9 (707) (East White Point)	450	5630
Stanolind, Spessard 36 (Luby)	350	5115
Refugio County—		
Quintana Petr. Corp., Heard 15 (Tomoconnor)	1350	5925
San Patricio County—		
Stanolind, Ben E. Ivey 1 (WC) sec K	150	6503
Victoria County—		
Colton & Colton, Terrell 1 (WC) John B. Sideck sur, disc. of Terrell fld	23	5610
Titantic Oil Co., Edwards 1 (WC) 12 mi w Bloomington	*	6763

LAREDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County—		
Adelon Oil Corp., Martin 5-A (Casa Blanca)	*	1170
Martin 7-A (Casa Blanca)	*	1153
Bridwell Oil Co., Rogers 1-B (Bridwell)	500	4325
Continental, Driscoll Est. 1-B (WC) 1⅞-mi e extension to Driscoll fld.	300	4515
Sam Cunningham, Dunn 1 (WC) sur 477	*	4035
Government Wells Oil Co., Lundell 42 (Lundell)	70	1518
Magnolia, D.C.R.C. 7 (58) (Lundell)	27	1548
D.C.R.C. 10 (132) (Cedro Hill)	16	1477
Lopez 2 (WC) sur 6	*	3327
Gus Tsesmelis et al, Rogers 1 (WC) A. C. Holmes sur 8	*	4805
Jim Hogg County—		
Verne M. Clopton & Julius Schleyer, Yaeger 1 (WC) sur 20	*	3615
Humble, Atwood 19 (Colorado)	80	3098
King-Colorado 17 (Colorado)	200	3003
Navarro Oil Co., Allen 3 (Manila)	¶0.3&9	2603
V. F. Neuhaus, Martinez (Trevino) F-2 (Colorado)	200	2945
Sun, Thaxton 7 (Colorado)	500	3013
LaSalle County—		
H. R. Cullen et al, Wildenthal Jr. 1 (WC) sur 11½	*	6367
McMullen County—		
Jake Jarmon, Haytar 1 (WC) sur 105	*	3089
Starr County—		
Fidelity O. & Roy. Co., Standard Trust Co. 1-D (Boyle)	120	3502
Webb County—		
Harold K. Boysen, Watkins 7 (WC) Sec 10	*	851
Glenda Oil Co., Saldivar 1-B Blk 6, sur 656	*	1112
H. and H. Drlg. Co., Bruni Est. 1 (WC) Blk 11, V. Borrego Gr.	*	1509
W. H. Holland and Jay Simmons, Bruni Est. 2-B (Glen)	131	2185
Alvin S. Moody, Jr., Bruni Est. 1 (Glen)	¶10.0	2164
Pitkin & Goldston Oil Co., Bruni Est. 4 (Glen)	64	2183
Dulup Oil Co., Garza Est. 2 (WC) blk 53	*	1805
Hagen & Stewart Drl. Co., Febronio Trevino 2 (WC) sh 1, ctr blk 78	*	1505

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Bastrop County—		
Fritz Fuchs Kerksey 1 (WC) 1 mi e Elgin, Glasscock sur	*	2120
Bexar County—		
C. J. LeCompte, Diaz 5 (Minnion Espado)	*	900
Caldwell County—		
Bob Kean and Williamson, Rector Est. 1 (WC) J. Roberts sur.	*	1897
Milam County—		
Harry Moody, Moody (Fee) 2 (Minerva Rockdale)	5	784
Williamson County—		
J. C. Jackson and A. A. Zizinia, Wittliff 1 (WC) W. Lancy sur 6	*	740

Texas Panhandle

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Cities Service, Magnolia 3-F	70	3178
Gulf, Cooper 30	246	3171
Magnolia, Fee (Tr. 244) 87	129	3112
Northern Nat. Gas Co., Heap 1	¶2.1	2815
Gray County—		
Magnolia, W. W. Merten 25-B	57	3135
Stanolind, Hood 11	221	3104
Hutchinson County—		
Kewanee Oil Co., Lewis-Badger 43	297	3005
Skelly, Watkins 5-B	377	2890
Travelers Oil Co., Haile 10-B	663	3043

West Central Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Callahan County—		
M. D. Heist et al, Grisham 2	*	500
E. Johnson et al, Hickman 2	8	446
Coleman County—		
Bradford & Robertson, Gillespie 2	254	3594
Lone Star Gas, Holt 1	¶5.6	2275
States Oil Corp., Coker 2	385	3581
Jones County—		
John Farrell-K. B. Nowles, Reid 1	50	2587
W. B. Omohundro et al, Adams-Gumm 7	268	1879
Shackelford County (Wildcat)—		
L. H. Choate et al, Dyer 1	15	1184
Shackelford County—		
Hickok & Harry Reynolds, Swenson 1	8	1505

West Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Cochran County (Duggan)—		
Osage Dr. Co., Moore 1	422	5042
Crane County (Jordan)—		
Texas Co., University 5-A	533	3600
Crane County (Sand Hills)—		
Humble, Tubb 41 (7338-ac)	1377	4404
Crockett County (Todd Deep)—		
Continental Oil et al, Todd 5-B	1828	5895
Ector County (Foster)—		
M. J. Delaney et al, Johnson-Conoco 2-A	2602	4136
Stanolind, E. F. Cowden 50-A	821	4077
Sunray Oil, Johnson-Landreth 3-G	1447	4197
Ector County (Goldsmith)—		
Gulf, Goldsmith 306 (19,840-ac)	715	4245
Phillips Pet.-Pure, Cowden 102	1401	4146
Ector County (Jordan)—		
Parker Dr. Co., McDonald-Texaco 4	2160	3685
Ector County (Judkins)—		
Waldrop & Pattillo, McKenzie-T. P. Coal 1	342	3720
Ector County (North Cowden)—		
Barnsdall Oil, Smith 14	1197	4200
Broderick & Calvert, Holt 14-A	1167	4462
Cities Service, Rhodes 6	3220	4194
Intercoast Pet. Corp., T. P. Land Trust-Conoco 3-A	626	4265
Sun Oil, Wight 8-C	704	4216
Gaines County (Cedar Lake)—		
Stanolind, American Warehouse 3	525	4740
Gaines County (Seminole)—		
Atlantic Ref. Co., Riley 2-D	722	5320
Magnolia-Atlantic, H. & J. 10-219	....	5140
H. & J. 2-251	455	5294
Shell, Mann 3	873	5208
Hockley County (Slaughter)—		
Delta Dr. Co., Slaughter 1-A	504	4976
Slaughter 1-B	324	5038
Pecos County (Lehn)—		
R. G. Pattillo-Sahara Oil Corp., Sullivan 7-B	127	1735
Pecos County (Taylor-Link)—		
Standard of Texas, University-Landrum 3	92	1624
Scurry County (Sharon)—		
Magnolia, Sterling 1	408	2435
F. W. Merrick, Westex Nat'l Bank 3	127	2447
Terry County (Slaughter)—		
Honolulu Oil Corp., Frazier 1	2228	5036
Geo. P. Livermore, Glimp 2	469	5035
Upton County (McCamey)—		
Cardinal Oil Co., Wooley-Shell 23	121	2166
Upton County (Gulf-McElroy)—		
Gulf, J. T. McElroy 224	3474	2826
Winkler County (Halley)—		
Gulf, G. W. O'Brien 136 (pb to 2970 ft)	8	3187
Winkler County (Kermit)—		
Bates-Reading Oil Corp., McCabe-Shell 4	316	3020
Yoakum County (Wasson)—		
Aloco Oil Co., Willard-Texaco 9-A	725	5204
Basin States Oil Co., Fisher-Walker 1	784	5192
Don Danvers et al, Bennett-Shell 1	412	5225
Albert Anderson 2	435	5240
Magnolia, Mahoney 19	639	5185
Shell, Baumgart 10-B	983	5178

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Boone County—		
Pure Oil, Lafollette, Pritchard & Robson 44	¶0.68	3265
Rich Fork, Croft Land Co. 5	¶0.08	3940
Braxton County—		
Pitts. & W. Va. Gas, Hill et al 7760	¶0.08	2020
Cabel County—		
Russell Petrie et al, Pinkerman 1	¶1.03	2803
Gilmer County—		
McCall Dr. Co., Fling 1	¶0.75	1846
W. H. Mossor, Riddle 1	¶0.70	2085
Carnegie, Peters 1	¶0.27	1508
Kanawha County—		
W. Va. Gas Corp., Fields 1	¶10.06	5076
United Carbon Co., Carney et al 831	¶5.51	5020
Boggess 1	¶5.28	5042
G. L. Cabot, Putnam 10	¶5.0	5003
Ponca Fork, Jones 1	¶0.9	5248
Lewis County—		
Carnegie, Chapman 1	1	1884
Lincoln County—		
One Mile Gas Co., Sweetland Land & Mining 2	3	1339
Monongalia County—		
J. I. Eddy & Co., Morris 1	*	3090
Pleasants County—		
Columbian Carbon Co., Hammat Hrs. 2	*	2810
Putnam County—		
Randolph Gas., Rupe 1	¶0.50	1780
Ritchie County—		
Carnegie, Watson 1	3	2104
Roane County—		
Bonnett O. & G. Co., Jones et al 1	¶1.13	1648
Wayne County—		
Hale, Lowe & Francis, Ferguson 1	*	3100

Wyoming

Company, Well and Location	Init. Prod. Bbls.	Depth
Park County (Frannie)—		
V. M. Kirk, Government 3, sw nw sw 24-58n-98w	350	3023

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WILDCAT REPORT
New Starts and Completions

ALABAMA
FIRST REPORT

Baldwin County—Westbrook, Thompson & Stewart (Fort Worth), Bon Secours Bay 1, located 1,000 ft off Little Point Clear, Bon Secours Bay, township 9s-1e, lcn (8500 ft test).

CALIFORNIA
FIRST REPORTS

Fresno County—W. S. Classen et al's No. 1, 1-21-14, lcn, Coalinga shallow area.
Los Angeles County—Rankin & Williams' No. 1, 7-3-13; foundation, Athens area. Sovereign Oil Corp.'s Marblehead 1, 750 ft n of s tip Point Dume, lcn, Malibu area.
Ventura County—J. A. English's Lankershim 4, section 13-4-19; lcn, Sespe area.
Yolo County—Standard's Typetts, 2-1, 9-12-3, lcn, Rumsey Hills area.

COMPLETIONS

Kern County—Trico Oil & Gas Co.'s Coffee 2, 8-28-29; bottomed 1394 ft, Walker sand showing oil, top Vedder 1180 ft, abnd, Round Mountain area.
Los Angeles County—Continental's Howell 2, 34-3-16, abnd 5422 ft, San Fernando area. Kreiger Oil Co.'s Cancer 1, 2-1-12, bottomed 7620 ft, produced 10 bbls daily on pump, 32.5-gr, cut 10%, abnd, West-Montebello area.

KANSAS
FIRST REPORTS

Barton County—Crown et al's Linder 1, nec sw 24-17-14w, mim.
Barber County—Derby et al's Hancock 1, c se se 10-32-12w, dr.
Ellsworth County—Duwe & Farris et al's Rathburn 1, c e½ ne se 6-17-8w, rur.
Greenwood County—Allison et al's Short 1, nec 10-24-11e, ru mach.
Graham County—Turner et al's Merritt 1, c nw ne 34-10-21w, sd 20 ft.
Jefferson County—Davis-Helm et al's Green 1, swc nw 9-11-19e, sd 45 ft.
McPherson County—Sunray et al's Ely 1, nwc ne 5-21-5w, dr.
Rice County—Buckles et al's Ramsey 1, c e½ se se 9-18-7w, dr, Alpine O. & R. Co.'s Fair 1, csl se nw 10-21-9w, rur.
Russell County—Pryor & Lockhart et al's Borrell 1, c n½ ne se 3-15-11w, mim.

COMPLETIONS

Barton County—Wakefield et al's Staatz 1, c s½ se sw 23-17-11w, 1 mi nw Bloomer pool, top Lansing 3060 ft, top Sooy 3340 ft, Arbuckle 3339-50 ft, hfw 3348 ft, abnd 3350 ft. C. L. Carlock et al's Hammer 1, cnl ne nw 35-19-12w, Hammer pool disc., top Arbuckle 3347½ ft, td 3370 ft, 4000 gals acid, 441 bbls, 41-gr.
Barber County—Transwestern et al's Buck 1, c s½ sw ne 35-30-14w, 2½ mi nw Lake City pool, top Arbuckle 4621 ft, abnd 4653 ft.
Phillips County—Cities Service Oil Co.'s Ray 1, ne nw se 32-5s-20w, Ray pool disc., Basal sand 3542-85 ft, td 3603 ft, perf 72 shots 3540-53 ft, 858 bbls, 32-gr.

NORTH LOUISIANA
COMPLETION

Sabine Parish—Shell Oil Co.'s Pickering 1, c ne sw 30-4n-12w, elev 130 ft, abnd 7562 ft.

MICHIGAN
FIRST REPORTS

Allegan County—H. C. Nelson's Balch 1, se se se 7-2n-15w, rig, Godfrey et al's Grevius 1, nw nw se 30-1n-15w, dr, Fletcher-Leman's Brower 1, se ne ne 1-3n-15w, dr.
Cass County—Little Four Oil Co.'s Waage 1, nw sw ne 22-5s-16w, lcn.
Roscommon County—E. C. Meridith's Neer 1, ne ne nw 19-24n-4w, rig.

COMPLETIONS

Allegan County—Lang & Lewis, Inc.'s Spau 1, ne se ne 1-2n-13w, Traverse lime 1618 ft, abnd 1678 ft. Sprenger Brothers, Inc.'s Miller 1, se se sw 11-3n-13w, Traverse lime 1742 ft, abnd 1745 ft. Douglas Dev. Co.'s Crane 1, se ne se 17-3n-16w, Traverse lime 1325 ft, abnd 2000 ft.
Barry County—Homer Fulton's Federal Land Bank 1, ne nw se 6-1n-8w, Traverse 1890 ft, abnd 1929 ft.
Berrien County—Lakeland Oil Corp.'s Plym 1, sw sw ne 1-7s-17w, Traverse 585 ft, td 602 ft, 100 ft oil natural, 10 bbls on pump after acid, new field.
Oakland County—Fisher-McCall, Inc.'s Moshier 1, sw sw sw, 15-5n-9e, Dundee 1940 ft, td 2735 ft, abnd.
Ottawa County—Jack Lowry's Wienan 1, c s se se, 24-8n-15w, Traverse 1779 ft, td 1941 ft, abnd.

MISSISSIPPI
FIRST REPORT

Yazoo County—Exchange Oil Co.'s Edgar 1, 28-13n-1w, dk (5500-ft test).

COMPLETION

Jefferson Davis County—W. J. Richardson, Berry 1, 33-13n-2e, elev 428 ft top Midway, 5753 ft; top chalk, 6642 ft; top Eutaw, 7942 ft; top Tuscaloosa, 8427 ft, abnd 8523 ft (Tuscaloosa).

MISSOURI
COMPLETION

Adair County—Ettington & Holmes et al's Kapps 1, swc 31-64n-15w, top Viola 950 ft, hfw 950-55 ft, top St. Peter (Wilcox) 1045 ft, top Arbuckle 1130 ft, abnd 1163 ft.

NEBRASKA
COMPLETION

Nemaha County—Jock Garden et al's Ord 1, c nw nw 8-5n-14e, nw Auburn pool, top Topeka 527 ft, top Lansing 805 ft, top Mississippi 1795 ft, top Hunton 2219 ft, top Maquoketa 2904 ft, top Viola 3031 ft, abnd 3110 ft.

NEW MEXICO
FIRST REPORTS

Eddy County—Dooley-Haynes et al's Martin 1, c se nw 9-19s-25e, dr 205 ft. Martin Yates, Jr. et al's Fedell 1, nwc 35-18s-26e, dr 250 ft.

COMPLETION

Eddy County—May Weathers et al's Flood 1, c se se 24-18s-23e, elev 3881 ft, top lime 560 ft, 1st, sul w 1473-75 ft, abnd 1740 ft.

OKLAHOMA
FIRST REPORTS

Kay County—Elders et al's Voehl 1, sec nw 34-27n-1w, otd 1185 ft, to dd.
Jackson County—Burke et al's Estes 1, swc ne 34-3n-19w, dr.

COMPLETIONS

Garfield County—Champlin Ref. Co.'s Kunkel 1, c e½ se nw 23-23n-6w, Enid pool disc., top Mississippi 6070 ft, td 6930 ft, pb 6190 ft, 7000 gals acid, 75 bbls, 40.4-gr.
Kay County—Zephyr Drlg. Co. et al's Morrell 1, swc ne 8-28n-4e, 3 mi ne Mervine pool, abnd 3245 ft.
Kiowa County—Lewis et al's Wooten 1, sec 28-7n-17w, 1 mi se extension to Hobart pool, top Arbuckle 893 ft, pay 948-55 ft, 1000 gals acid, 43 bbls, 36-gr.
Lincoln County—Magnolia et al's Ross 10, se ne se 2-14n-3e, new horizon in Chandler pool, otd 4470 ft, pb 4015 ft, top Oswego ll ne 3955 ft, 1000 gals acid 280 bbls.
Payne County—Mid-Continent et al's Simpson 2, swc 7-18n-2e new horizon in Ramsey pool, otd 4882 ft, pb 4774 ft, top Hunton line 4680 ft, perf 4677-84 ft, 94 bbls, 40.2-gr. Helmerich & Payne et al's Collins 3, c w½ ne nw 13-17n-1e, new horizon in Coyle pool, otd 4891 ft, pb 4720 ft, top Hunton lime 4588 ft, 49 bbls. Williams et al's Allison 1, nw sw nw 30-18n-2e, s edge Ramsey pool, Upper Pawhuska 1648-1703 ft, Lower Pawhuska 1780-1815 ft, top Dewey 2920 ft, top Oswego 4018 ft, top Verdigas 4370 ft, top Skinner 4380 ft, top pink lime 4404 ft, top Inola 4425 ft, top Red Fork 4413 ft, top Bartlesville 4513 ft, top Mississippi lime 4590 ft, abnd 4597 ft.
Pawnee County—Portable Dr. Co. et al's Messer 1, sec nw 31-23n-5e, 3 mi e Masham pool, Layton 2495-2513 ft, top Oswego lime 2887 ft, abnd 2987 ft.
Tillman County—Staley & Hawkins et al's Taylor 1, swc 9-2s-15w, 12 mi ne S. Frederick pool, Granite Wash 1113-19 ft, top Arbuckle 2080 ft, abnd 2503 ft.

EAST TEXAS
FIRST REPORTS

Navarro County—A. J. Willis et al's J. W. Edens 1, 3300 ft from nw 7300 ft from ne lines Enoch Fryer sur A-3, 1½ mi sw Pryor, rig.
Shelby County—Superior Oil Corp.'s Pickering Lbr. Co. 5, D. Gonzales sur, mat for 6000-ft test.
Wood County—Amerada Pet. Corp's J. J. Lloyd 1, 467 ft from n and 1093 ft from e/e/e line of 154-ac tr, Wm. Barnhill sur, 8 mi n by e Quitman, rur for 6500-ft test.

COMPLETIONS

Camp County—Harry Moss & Delta Drl. Co.'s Joe Venters 1, 1320 ft from n 330 ft from e lines S. Wright sur, elev 385 ft, top Georgetown 4550 ft, base Paluxy and top 1st. Glen Rose 5930 ft, Massive Anhydrite 7143-7375 ft, top Hill sand 7395 ft, top Young lime 7625 ft, td 8087 ft, perforated pipe opposite Travis Peak saturation 8000-42 feet and 7952-84 ft, flowed 152 bbls, 41-gravity oil by heads initial.
Limestone County—S. J. Taylor-Lytle & Phillips' Reid 1, 150 ft from nw 714 ft from ne lines 117-ac tr, nw edge old Mexia field, elev 555 ft, top Georgetown 3840 ft, Paluxy 4380 ft, 1st Glen Rose 4560 ft, anhydrite 5248-5398 ft, Pettit lime 5715 ft, Travis Peak sand 5795-6126 ft, pb and run pipe, tested water and abnd.
Navarro County—W. E. McKinney-C. W. Killough's James 1, 660 ft from w 50 ft from s lines 129.2-ac tr, R. D. Newman sur, 1½ mi

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e Bazette, elev 379 ft, base Austin chalk between 3112-34 ft, abnd 3321 ft.

Upshur County—A. C. McGahey-R. T. Myers et al's L. Turner 1, SEc of 200-ac tr, A. Butler sur, 6 mi n Ore City, elev 231 ft, Pecan chalk 2380-2970 ft, base Austin chalk 3850 ft, top Georgetown between 4027-58 ft, abnd 4211 ft.

Van Zandt County—F. B. Paine Drl. Co. (was Frank Shackelford's) J. R. Oliver-Combs 1, NWc of 193-ac lse, John Wright sur, 3½ mi nw Grand Saline, elev 464 ft, Pecan chalk 2200-2540 ft, Austin chalk 3564-3890 ft, top Woodbine series 4136 ft, abnd 4607 ft.

South Texas

FIRST REPORTS

Cameron County—Pure's Garcia Land 2, Santa Isabell Gr, 3 mi sw Point Isabell, lcn.

Duval County—Diamond Half Oil Corp.'s Benedum & DeCantu 2, sec 564, BS and F Sur, 8 mi s Freer, lcn. Magnolia's Whitecotton 1, BS and F Sur 116, 12 mi nw Freer, 10¾-inch csg. 113, dr 650 ft.

Goliad County—Continental's Reed 1, 200-ac tr, Sebastian Vela Sur, 3 mi e Charco, mi.

Hidalgo County—Royal O. & G. Corp.'s Yturria Town and Improvement Co. 1, Lot 4, Royal O. & G. Co. Subd, 503-ac lse, Por. 43, Juris. of Reynosa, 7000 ft e Samfordyce field, sp.

Jim Wells County—H. R. Smith and H. J. Mosser's Schumacher 1, 52-ac tr, G. J. Reynolds Sur, Ab 394, 10¾-inch csg 875, dr 1728 ft. W. R. Quin's Schumacher 1, J. Poitevent Sur 1, Ab 358, tr farmed out by O. W. Killam, 3 mi nw Orange Grove, lcn.

LaSalle County—H. R. Cullen's Wildenthal 2, J. Gilbert Sur 16, Ab 1797, lcn.

Live Oak County—Marion Prodn. Co.'s Lark 1, Blk 69, E.W.B. Scrugham Sur, 1 mi ne Calliham field, dr below sur csg. C. G. Newton et al's Benham 1, 20-ac tr, out of 214.07-ac tr, L. M. Hitchcock Sur, Ab 224, set sur csg woc.

Nueces County—Wellington Oil Co.'s Howze 1, 80-ac lse, Sec. 56, George H. Paul's Subd, Robt. Driscoll Ranch, 1 mi s Minnie Bock field, 10¾-inch csg 1020, dr 2275 ft.

Starr County—Texas Co.'s State-Dee Davenport 1, 636-ac tr, Sec. 78, Santos Bazan Sur, Subd 899, e offset Sun Oil Co.'s Lehr 1, discovery N. Rincon field, lcn.

Victoria County—G. H. McCarthy's Urban 1, 161.37-ac lse, R. Manchola Sur, Ab 87, se Coletto Creek field, mi.

Zapata County—Dulup Oil Co.'s Garza 3, Blk 63, C. A. Douglas Subd, Las Comitas Gr, Zorro Ranch, 8 mi s Escobas, sp. Jose Martinez and J. M. Salinas' Bruni 1, Blk 43, Subd of Blas Uribe Tr, Jose Borrego Gr, dr 785 ft.

COMPLETIONS

Bastrop County—Fritz Fuchs' Kerksey 1, 75-ac tr, G. J. Glasscock Sur, 1 mi e Elgin top Austin chalk 2080, abnd 2120 ft.

Caldwell County—Bob Kean and Williamson's Rector 1, 40-ac tr Roberts Sur, 5 mi ne Lockhart, temp abnd, 1897 ft.

Duval County—Continental's Driscoll 1-B, BS and F Sur 481, Pettus 4102, td 4515 ft, comp, flwd 56½ bbls, 5 hrs, ¾-inch ch, 80 lbs. tp., 630 lbs. cp., perf. 2530-35, extends Driscoll field 1¾ mi e. Sam Cunningham's Dunn 1, 240-ac tr, S and M Sur 477, Diego Hinojosa Gr, 7 mi e O'Hern field, 8 mi w Benavides, abnd 4035 ft. Magnolia's Lopez 2, 960-ac tr, GB&CNG Co. Sur 6, 2½ mi n Cole field, abnd 3327 ft. Gus Tsesmelis et al's Rogers 1, A. C. Holmes Sur 8, 4000 ft ne Bridwell field, top Pettus 4333, abnd 4805 ft.

Jackson County—Stanolind's American Nat'l Realty Co, 1, 3000-ac tr, Richard Grimes Sur, Ab 113, 2½ mi sw Francitas field, abnd 9010 ft.

Jim Hogg County—V. M. Colpton and Julius Schleyer's Yaeger 1, Blk 7, Sur 20, 40-ac tr, 1½ mi ne Randado field, abnd 3615 ft.

Jim Wells County—F. J. Hynes et al's Cocke & Lawrence 1, 300-ac tr, Wait F. Rice Sur, Ab 400, 5 mi nw Orange Grove, abnd 5405 ft.

LaSalle County—H. R. Cullen et al's Wildenthal 1, Drlg. Unit 2 Cntr Lot 9 Blk 69, Oleander Heights Addition of Cotulla Townsite Sur 11½, abnd 6367 ft.

Live Oak County—Edwin M. Jones-West 2-B, G. L. Hass Sur 59, 6 mi sw George West, abnd 3626 ft. Marion Prodn Co.'s Lark 1, Blk 69, E. W. B. Scrugham Sur, 1 mi ne Calliham field, abnd 1085 ft.

McMullen County—Jake Jarmon's Haytar 1, BS and F Sur 105, 4½ mi uptrend Seven Sisters Field, abnd 3089 ft.

Nueces County—Southern Minerals Corp.'s Bluntzer 1, 834.62-ac lse out of Blk 3, Bluntzer Partition, 1068.2-ac tr, 6½ mi nw Banquette, abnd 6525 ft.

San Patricio County—Stanolind's Ivey 1, 200-ac lse, Sec K, George H. Paul's Subdn, Coleman-Fulton Pasture Lands, 5000 ft n Midway Field, T. D. 6503 ft, Comp. 97 BPD, ¼-inch ch, 530 lbs tp., 860 lbs cp., perf 5326, 29 shots, one mi n extension of Midway field.

Victoria County—Colton & Colton's Terrell 1, 125-ac of 250-ac tr, John B. Sideck Sur, 2 mi s Buckholtz, td 5610 ft, comp 23 bbls on pump, perf 5274-84, discovery of Terrell field. Titantic Oil Co.'s Edwards 1, 80-ac lse out of 2870.31-ac tr, Desiderio Nira Sur, Ab 91, 12 mi w Bloomington, abnd 6763 ft.

Webb County—Harold K. Boysen's Watkins 7, Sec 10, San Casimiro Gr, 20 mi nw Freer, abnd 851 ft. Glenda Oil Co.'s Saldiva 1-B, Blk 6 Eugene Garner Subd 1, Reyna Pasture Sur 656, J. V. Borrego Gr, 18 mi sw Aguilares, abnd 1112 ft. H. and H. Drlg. Co.'s Bruni 1, Blk 11, Calvillo Ranch Subd, Calvill Pasture, V. Borrego Gr, abnd 1509 ft.

Williamson County—J. C. Jackson and A. A. Zizinia's Wittliff 1, 550 ft s Brushy Creek, 250-ac tr, W. Lancy Sur 6, 7 mi s Taylor, temp abnd 740 ft.

Zapata County—Dulup Oil Co.'s Garza 2, Blk 53, C. A. Douglas Subd, Zorro Ranch, Las Comitas Gr, 660 ft sw No. 1 abnd 1805 ft. Hagen & Stewart Drlg. Co.'s Trevino 2 cntr Blk 78, Sh 1, McCullough Subd, El Grullo Gr, 200-ac tr, 3 mi n Charco Redondo field, abnd 1505 ft.

North Texas

COMPLETIONS

Baylor County—Jack Prince et al's S. G. Farmer 1, NEc TE&L sec 3126, dry lime 2580-90 ft, abnd 3132 ft.

Montague County—W. H. Peckham et al's J. T. Lawson 1, 1800 ft from n 3750 ft from e lines 287½-ac tr, N. Kimbro sur A-405, top Ranger 1815 ft, top Bend 5840 ft, abnd 6133 ft.

West Texas

FIRST REPORT

Pecos County—S. D. Patillo et al's E. J. Hoffman 1, SEc nw T&St.L.Ry. sec 6, Blk 141, mim for 2000-ft test.

West Central Texas

FIRST REPORT

Callahan County—Merry Bros. & Perini's Chas. Yost 1, se nw nw S.P.Ry. sec 18, blk 8, rur for 3200-ft test.

COMPLETION

Shackelford County—L. H. Choate et al's J. F. Dyer 1, swc ne T&P sec 74, blk 12, sand 1176-84 ft, pumped 15 bbls, initial.

TEXAS GULF COAST

FIRST REPORTS

Colorado County—Henshaw Bros.' McKamey 1, Thatcher & Leonard sur, rig for 6700-ft test.

Hardin County—W. P. Luse's Hlavaty 1, n outpost So. Esperson fld, s of old cap rock production, rig for 9000-ft test.

Jefferson County—Hall-Jordan and British American's State 2-71, Gulf of Mexico prospect, Sabine Pass, 9000 ft s State 1-72, lcn 9000-ft test.

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MEN IN THE INDUSTRY'S NEWS

B. M. CALDWELL, of Walter O'Bannon Company, Tulsa, has been named chairman of the subcommittee on Rating of Hoisting Tools, a group operating under the American Petroleum Institute's Division of Production Committee on Pumping Equipment and Engines. Members of the committee, which has been enlarged, are F. B. Bayless, Oil Well Supply Company, Oil City, Pennsylvania; J. O. Hills, General Petroleum Corporation of California, Los Angeles; E. F. Kindsvater, Phillips Petroleum Company, Bartlesville; J. R. Mahan, The National Supply Company, Toledo, Ohio; Floyd C. Merritt, Byron Jackson Company, Los Angeles; Karl P. Neilsen, Neilsen Pump Company, Long Beach, California; L. A. Ogden, The Pure Oil Company, Fort Worth; and E. W. Ostrom, Axelson Manufacturing Company, Los Angeles.

CHANNING R. DOOLEY, industrial relations manager for Socony-Vacuum Oil Company, has been appointed director of training in industry for the National Defense Advisory Commission. Dooley, who has been granted a leave of absence, helped to develop intensive training techniques during the World War as a member of the War Resources Board.

S. F. BOWLBY, formerly division manager for Shell Oil Company, at Iowa, Louisiana, has been transferred to the Pacific Coast where he takes up new duties as chief engineer of the exploitation department, Los Angeles, replacing Rouwe Dykstra who has been given an assignment with the company in Colombia, South America.

WALTER B. PYRON, executive vice president of Gulf Oil Corporation, Houston, was the principal speaker at the gathering of company West Texas employees and their families held at Odessa August 30. Approximately 3500 participated in the outing. F. J. Adams, head of the Fort Worth division office, also spoke.

FRED E. COOPER, president of the Tulsa Nomad's Club, announced resumption of regular monthly meetings on September 23. H. M. Cosgrove, secretary, has sent questionnaires to members regarding type programs desired during the fall and winter months.

E. A. NESBITT, formerly petroleum engineer with Phillips Petroleum Company, has accepted a position in the engineering department of Stanolind Oil & Gas Company and will have his headquarters in Tulsa.

VIC BAUM, production superintendent for Ryan Consolidated Petroleum Corporation, left for a California vacation trip after completing a survey of Kansas properties and operations.

JIM BALLARD, district geologist at San Antonio for Tide Water Associated Oil Company, is back at work after a vacation spent in Mexico City.

E. O. BENNETT, chief engineer for Continental Oil Company, Ponca City, Oklahoma, will discuss "Trends and Observations in Pressure Maintenance Practice" before the East Texas Section of the American Institute of Mining and Metallurgical Engineers at Kilgore, September 10.

WALTER D. CLINE, veteran North Texas producer and drilling contractor, is reported seriously ill of a heart attack sustained August 30 while en route from his Wichita Falls home to Fort Worth. He is the immediate past Imperial Potentate of the Shrine.

W. L. KNIGHT, 58, veteran West Central Texas operator and a resident of Breckenridge the past two decades, died September 1 in a Fort Worth hospital where he was receiving treatment for a throat ailment.

RALPH KING, Samuel Lewis, and O. R. Welch, formerly in the Cushing producing area for The Pure Oil Company, have been transferred to the Cumberland district with main offices at Madill, Oklahoma.

H. R. STRAIGHT, president of Cities Service Oil Company at Bartlesville, will be a speaker at the oil men's reunion to be held in El Dorado, Kansas, on September 27.

GEORGE H. FERN, director of the Michigan State Board of Control for Vocational Education, will speak before the Michigan chapter of the American Petroleum Institute, September 11.

EDWIN S. HALL, senior counsel for Standard Oil Company of New Jersey, has been elected a vice president of the company. He has been a director since 1934.

H. E. WALKER died September 3 at his home in Norman, Oklahoma. He organized the Walker Oil Company in 1921, and was actively engaged in the oil business until a few months ago.

ASA LEE is the new president of Kingwood Oil Company, Effingham, Illinois, not Asa King, as erroneously reported in this department last week. He succeeds Joe King, who died recently.

LEO McCULLUM of Nowata, Oklahoma, and George Stanton, of Tulsa, are new employes in the exploration department for Shell Oil Company at Tulsa office.

GEORGE W. CUNNINGHAM, clerk at the St. Louis office for Shell Oil Company for the past year, has been moved to Tulsa.

H. W. SHANNER, Sinclair Prairie Oil and Gas Company scout in South Texas, has returned to work after a two-week vacation.

BOB SIDDALL, Atlantic Refining Company scout at Corpus Christi, has returned from a vacation spent in New Mexico and Colorado.

FATE BUCHANAN, drilling superintendent for Al Buchanan Drilling Company, San Antonio, is due to return from Colorado shortly.

GUESTS from abroad at a special luncheon of the Houston Nomad's Club last week were William V. Vietti, general manager of The Texas Petroleum Company, Bogota, Colombia; Miguel C. Evangelista, Y.P.F., Buenos Aires, Argentina, and Carl C. Lavery, Mene Grande Oil Company, San Tome, Venezuela.

JERRY T. FAUBION has been appointed as sales and service representative at New Iberia, Louisiana, for McEvoy Company, Houston. A graduate of Texas A. & M. College, he was previously associated with United Gas Company and Sinclair Refining Company. His headquarters are at 229 West Main Street, New Iberia.

CLAUDE C. COOK has become associated with Peerless Pump Division of Food Machinery Corporation, Los Angeles. He was with United Iron Works, Inc., of Joplin and Springfield, Missouri, as engineer in the drilling and pumping division.

JOHN M. WILSON, chairman of the board of The National Supply Company and for many years its president, died September 6 at Pittsburgh. Wilson grew up in the National Supply organization, his father at one time being its president. He worked in the National Supply store at Beaumont, Texas, in 1902 when Spindletop was flourishing. Subsequently, he moved to the company's general sales office and later into the executive offices at Pittsburgh. Burial was September 8 at Pittsburgh.

JOHN F. TUCKER, southwestern district manager for The National Supply Company, Fort Worth, died suddenly of a heart attack at noon September 6 while eating lunch in Dallas. Tucker came from Parkersburg, West Virginia, to Spindletop, and subsequently worked for The National Supply Company in many other early Gulf Coast fields. He rose to Houston district manager and then was transferred to Fort Worth.

DR. G. E. ANDERSON, 61, professor of geology at the University of Oklahoma, died September 1 of a heart attack at his home in Norman. He has been a member of the faculty since 1922 and was an authority on sedimentation, having just completed a manuscript on that subject.

J. H. LANGSTON, chief scout for Sun Oil Company, has completed 21 years of service with the company.

LEAVITT CORNING, JR., San Antonio geologist, is vacationing in Pennsylvania.

FRED W. NUTE, San Antonio operator, has returned to Texas from Illinois where he drilled a wildcat.

N. C. McGOWEN, president of United Gas Pipe Line Company, was scheduled to present a safety award plaque honoring 287 employes of the Monroe, Louisiana, district September 7. The group has 487 accident-free days and 66,878 consecutive man-hours without a lost-time accident.

REAMERS MUST TAKE A BEATING AND LIKE IT

Few, if any, other tools meet so varied an assortment of loads as that which falls to the lot of oil well reamers. Tension, torque, impact and vibration all come the reamer's way — and continuously. Material selection is, therefore, even more important than usual.

Chromium-Molybdenum (SAE 4140) is proving to be excellent for reamer bodies. When properly heat treated it develops the required properties — strength, toughness, and good fatigue strength — in the heavy sections necessary.

Furthermore, SAE 4140 has definite production advantages. It is free scaling during forging, thus giving a good surface to the bodies. It responds uniformly to heat treatment and presents no machining difficulties at the hardness to which it is treated.

This is only one of the many applications of Molybdenum Steels to the specially tough jobs in well drilling. Complete data on these steels is contained in our "Molybdenum Steels in Oil Production," which is sent free on request.

PRODUCERS OF MOLYBDENUM BRIQUETTES, FERRO-MOLYBDENUM, AND CALCIUM MOLYBDATE

Climax Mo-lyb-den-um Company
500 Fifth Avenue · New York City

MOLY

NOTES FOR THE Equipment Buyer and User

Compressor

INGERSOLL-RAND COMPANY

A new two-stage air-cooled compressor, rated to deliver 60 feet of free air per minute at a discharge pressure of 100 pounds, has been announced by Ingersoll-Rand Company, 11 Broadway, New York.

Three models are available, all built around the same gasoline engine-compressor plant. The push-about model is mounted on roller-bearing, pneumatic-tired wheels. A turtle-back cover protects the compressor and engine from the weather and provides a means of locking the wheels against theft. The deluxe model is a spring-mounted, high-speed trailer unit with tool boxes for carrying equipment built into the sides of the body. The utility model is on a steel base for mounting directly on a service truck or built into the truck body.

Ingersoll-Rand Push-About Compressor

Electric starting is available on the utility and deluxe mountings.

Portable Cutting Machine

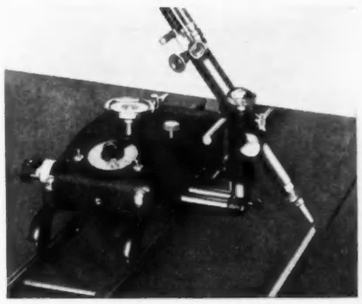
THE HARRIS CALORIFIC COMPANY

A new portable motor-driven gas cutting machine, designed for cutting steel of light or heavy section and to enable metal working shops and manufacturers to replace castings and forgings with parts flame-cut from steel plate, has been announced by Harris Calorific Company, Cleveland.

Designated Model K, it is powered by a Universal electric motor and will cut straight lines of any length, with square or beveled edges; 1- to 86-inch diameter circles; and has a speed range from 3 to 60 inches per minute, forward or reverse. An instant stop feature permits cutting sharp angles, and a tracing feature provides for cutting irregular forms. Instant reversing is provided by a switch.

The unit, which weigas 45 pounds, obtains traction through two hardened drive wheels. Swivel follower wheels provide 4-point support, and an oiling feeder line provides lubrication to all bearings.

Torches to use acetylene, propane, natural gas and other fuel gases in combination with oxygen are available for use with the machine. Standard equipment includes cutting torch and tip, torch mounting, circular cutting attachment, 5-foot track, and electric socket plug.



Harris Calorific Cutting Machine

Cylinder Carrier

L-K PUMP VALVE COMPANY

A tool designed to facilitate lifting and carrying oxygen and acetylene drums for welding operations in pipeline construction has been announced by L-K Pump Valve Company, Houston.

The carrier consists of two half-circles hinged together by flat-headed bolts, each section provided with a handle that works through a housing at the center of each half-circle. A key made integral with the handle may be engaged in either of two keyways provided in the housing, depending on the size cylinder to be carried. By engaging the key with the short keyway, the carrier will fit the smaller or oxygen cylinder, while its engagement with the long keyway adjusts the carrier for the larger acetylene cylinder.

The carrier is slipped over the cylinder, standing on end, and slipped to a point just above center. Lifting on the handles causes the carrier to catch a friction hold on the cylinder, and the cylinder is carried from the shoulders of two men.

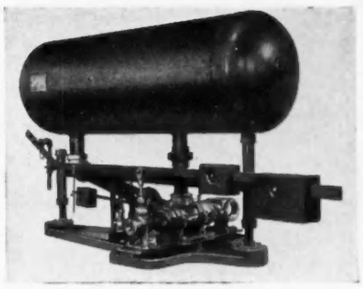
L-K Cylinder Carrier

Boiler Feeder

W. M. ACKER ORGANIZATION, INC.

An automatic system for stream drainage and boiler feeding, designed to deaerate water fed to boilers, liberating oxygen and non-condensable gases detrimental to metal under heat and pressure, has been announced by W. M. Acker Organization, Inc., 3167 Fulton Road, Cleveland.

The design of the equalizer emphasizes new features in the rocker section which bears the brunt of mechanical operation. The naval bronze female trunnion receives direct support from a bearing unit composed of two split bearings cast integral to insure permanent alignment and located in the center of the rocker section, carrying the full load of the tilting mechanism. No weight rests on the packing.



Acker Organization's Equalizer

Male steam end and water end are bolted independently to a heavy bridged base to hold all elements in rigid alignment. Other features include stuffing boxes with split packing glands held by T-head bolts; Alemite fittings for lubricating bearings and packing, A. S. M. E.- certified heavy galvanized steel tank, dirt-proof bumers, and union tank connections.

Turbine Pumps

POMONA PUMP COMPANY

Redesign of its line of 6-inch medium-capacity vertical turbine pumps to obtain higher efficiency and better performance has been announced by Pomona Pump Company, 611 East Commercial Street, Pomona, California. Impellers and seats have been improved.

The redesigned pump requires a 7½-horsepower motor, against a 10-horsepower unit for the old model, to pump 100 gallons per minute against 110-foot lift in a well with 50 pounds pressure above. Efficiency of the pump for this head capacity has been increased 6½ points, number of stages has been reduced one fourth, and initial cost has been lowered 20 percent.

The pumps are water-lubricated, with no stuffing box below ground level; the semi-open impeller can be adjusted from the surface for wear and for changing capacity, and the pumps are

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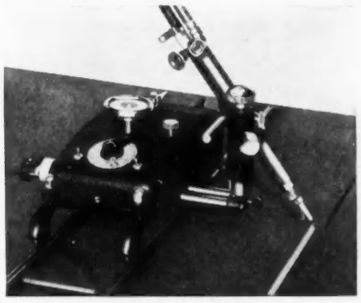

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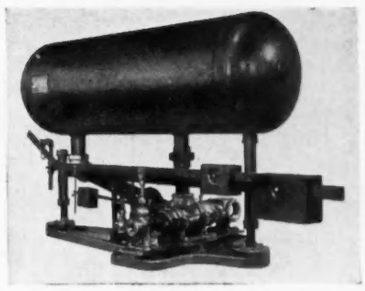

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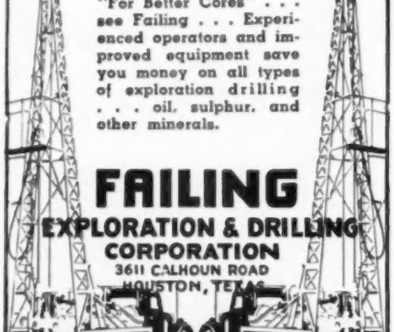

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NOTES FOR THE Equipment Buyer and User

Pomona's redesigned vertical turbine pump. Insert shows cross section view of pumping stages with newly designed impellers and seats.

described as non-sandlocking and non-gaslocking.

The impellers, made of bronze, operate in a cone-shaped seat in the pump bowls.

Rod Line Carrier

THE SISK COMPANY

A new roller rod line carrier, featuring a deep groove on the sheave wheel to accomodate up to 1-inch pull rods, has been announced by The Sisk Company, 202 North Burnett Street, Wichita Falls, Texas.

The device is designed with permanent grease seals, eliminating the necessity of replenishing lubricant in the hub. The sheave wheel is carried on two deep-groove ball bearings equipped with labyrinth-type grease seals for complete isolation of the bearings and to prevent binding from either radial or thrust loads.

Sisk Company's Rod Line Carrier

A stake lock, applied without tools, is provided in the shank to prevent the carrier from wobbling and turning in the stake. An ice-shedding finish is available on special order.

Rotary

THE BREWSTER COMPANY

A small rotary designed for shallow driling, rated for 2500 feet of 4-inch pipe, has been announced by The Brewster Company, Shreveport, Louisiana.

Brewster Company's Small Rotary

The unit is 55 inches long, extreme width of the guard is 34 inches, skid width is 26 inches, overall height is 15 inches, and centerline to centerline is 28 inches. Alemite-lubricated bearings are used on the pinion shaft, and are enclosed in a housing that can be easily removed for replacements. The table has full 12-inch opening and turns on 21 2-inch balls. Gear reduction is 5.4:1. Weight is 1490 pounds.

Pressure Viscosimeter

ENGINEERING LABORATORIES, INC.

A new testing instrument, designated Humble Pressure Viscosimeter, Assembly 1600-Type D, has been announced by Engineering Laboratories, Inc., 610 East Fourth Street, Tulsa.

The device is a laboratory instrument designed to measure viscosity of subsurface samples of oil from a small sample and under various conditions of temperature and pressure. It consists essentially of a removable, bored cylindrical barrel of ¼-inch nominal internal diameter, in which a closely fitting steel ball rolls through the oil with the barrel inclined at a definite angle. The ball makes contact at one end of the barrel with an insulated electrode, and actuates a buzzer. The length of time for the ball to roll the length of the barrel is measured by a stop watch.

The removable barrel is held in place in the cylinder by a nut in such a way that after the sample of oil has been placed in the viscosimeter, the barrel can be moved to allow the free circulation of oil through and around the barrel. In this manner, when the cylinder is turned on the trunnions, the ball rolls from one end of the barrel to the other and circulates the oil to

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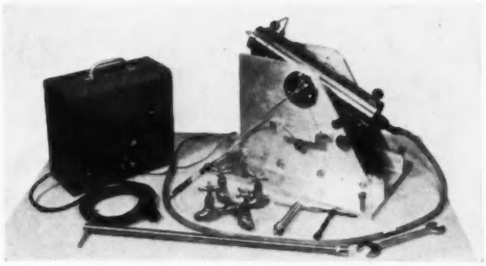
NOTES FOR THE Equipment Buyer and User

insure proper mixing of the sample. The upper portion of the steel cylinder is enlarged and forms a tapered chamber which acts as a reservoir for the oil, and affords space for agitation to insure equilibrium between the gas and oil. After the oil sample has been circulated around the barrel, this sample is enclosed inside the barrel by a plunger on the upper end and a gasket at the bottom. With the cylinder turned in a position so that the top of the barrel is down, the ball will come to rest at the lower end of the barrel. As the cylinder is turned on the trunnion to the desired angle, the ball rolls through the oil at a speed which is a measure of the viscosity of the oil.



Humble Pressure Viscosimeter

It is necessary to calibrate the instrument both before use and periodically by using several fluids, the viscosity of which has been determined by a calibrated suspended level capillary instrument. The densities of the calibrating fluids are determined by a pycnometer. These calibration curves are plotted with the roll time, times the difference between the density of the ball and the density of the oil in grams per cubic centimeters as one coordinate and the viscosity in centipoises as the other coordinate. From these calibration curves, it is then a simple matter to determine the viscosity of a sample under any conditions of temperature and pressure.

The viscosimeter is connected to the sampler through the manifold assembly, and the steel tube from the sampler flushed with the sample. The steel tube connecting the viscosimeter with the manifold assembly, and the manifold assembly is then evacuated. After evacuation, the sample is kept under more than the saturation pressure in the sampler and the manifold value connecting the sampler with the viscosimeter opened in order to fill the viscosimeter with a representative sample. The pressure in the viscosimeter is then increased to more than the saturation pressure, and thoroughly agitated so that all of the oil will become thoroughly saturated. The viscosimeter is then placed in a water-bath so that the temperature can be controlled. The pressure and temperature is then regulated and the viscosity measured under the desired conditions. As the pressure in the cylinder is reduced by withdrawing quantities of oil and gas, the sample is agitated to insure equilibrium and other determinations made.

Lubricator

The Farval Corporation, 3249 East Eightieth Street, Cleveland, has issued Bulletin 10-A describing its Dualine, Jr., centralized system of lubrication. The unit was designed for use with small machine tools and other equipment.

Lane-Wells Company Opens New Iberia Office and Shop

Lane-Wells Company has opened a new office building and shop at New Iberia, Louisiana. A new electrolog unit, consisting of instrument car and service truck, has been assigned to the district, and a second unit will be delivered shortly.

Personnel in the district includes K. K. Gage, superintendent; R. F. Bryant, C. W. Herron, L. E. Manes and G. C. Robinson, gun perforator operators; W. M. Farnsworth and C. J.

New Iberia office and shop building of Lane-Wells Company. C. J. McWhorter and W. M. Farnsworth, electrolog engineers, are pictured beside trucks comprising the company's unit operating in the area.

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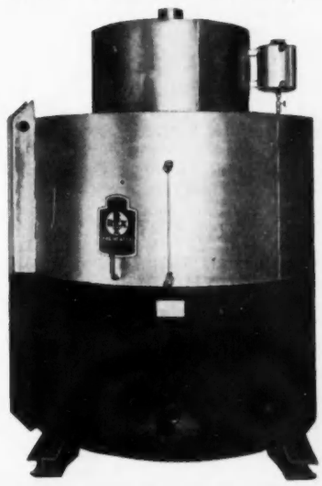

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P. O. Box 2811 Houston, Texas

McWhorter, electrolog operators, and C. W. Armatta, M. A. Hebert, W. E. McKee and W. R. Smith, working in the shop.

Well Equipment Celebrates Anniversary and Expansion

Well Equipment Manufacturing Company, Houston, in observance of its sixth anniversary recently, celebrated with a banquet and dance as guests of C. K. Stillwagon, company president. The annual sales conference of the company was also held in conjunction with the anniversary, with representatives from districts throughout the country in attendance.

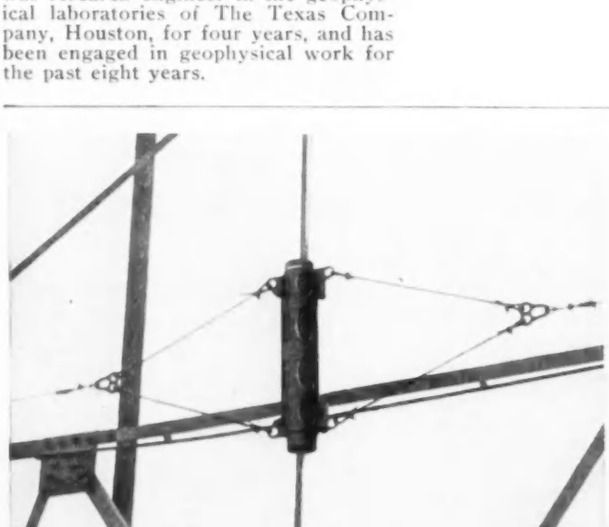
Coincidental with the company's sixth anniversary an expansion program in the office building and plant was completed, giving the organization more than 11,000 square feet of floor space.

Technical Instruments Company Organized in Houston

Technical Instrument Company has been organized with headquarters at 1410 Kipling, Houston, to manufacture precision instruments for the petroleum industry, and to build experimental and test models of any type of seismograph and well-logging instruments, refinery meters, and recording gauges.

C. W. Bocock, head of the company, was research engineer in the geophysical laboratories of The Texas Company, Houston, for four years, and has been engaged in geophysical work for the past eight years.

Well Equipment Manufacturing Company's enlarged office building and plant at Houston is shown above, while a banquet scene taken during celebration of the company's sixth anniversary is at the right.



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The word Dictaphone is the registered trade mark of Dictaphone Corporation, makers of dictating machines and accessories to which said Trade Mark is applied.

Squeaks from the Bull Wheel

Independent

The conductor of this department long has wondered what "independent operator" as used in the oil venacular really means. It is answered by a California subscriber to the world's greatest oil journal in these words:

"I am an independent (?) producer—I produce what the 'Proration Committee' says I can produce; I take for it what the pipe line company wants to pay me; I ship when I am told to, and can only ship to one company; the misdeal says that under no circumstances will I be allowed to become a millionaire or even independent. I am about as 'independent' as the wart on a hog."

Add to this: Subject to jury duty and the draft act; and most of them are married or paying alimony.

Appropriate

Proud Father: What shall we call it?
Fond Mother: Let's call it Quits.

Forgetful

Who called this afternoon?
Only Aunt Sophie.
Well, she left her pipe.

What Wife Gets

My wife explored my pockets last night.

What did she get?

About the same as any other explorer—enough material for a lecture.

Sure Sign

They're still very much in love with each other.

Are they?

Yes. When she's away she writes letters to him whether she needs money or not.

New Model Model

The artist kissed his model: "I bet you do that to all your models," she said.

"No," he replied, "you are the first."

"How many models have you had?"

"Four," he said, "an onion, a banana, a rose, and you."

Sales Talk

A client listened to a lengthy sales talk. As his interest seemed to wane, the salesman became more and more enthusiastic about his bond. The issue was everything an investor would want.

"And in addition," the salesman concluded, "not only has this bond all the features I've told you of, but its purchase would be a very timely one."

"Timely. In what way?"

"If I don't make this sale I am going to be fired."

Relatively Not

A visitor to Princeton entered a barbershop for a haircut. A discussion of local affairs, of course, could not omit Professor Einstein. Upon inquiry as to whether the barber knew Dr. Einstein, he replied: "I have often seen Dr. Einstein on his walks without a hat, but let tell you the barbers of Princeton don't like him."

Sold

"There goes Jake the auctioneer. He drives an awful bargain."

"Yes, I know. I was riding in it last night."

Helps a Bit

"Don't I look good enough to eat?"

"You might with a little more dressing."

Her Start

"I'd love it if you had a career," stated an ambitious husband.

"All right," his wife replied, and shot him.

Of Course

"I wonder if my husband really loves me . . . "

"Of course he does. Why should he make you an exception?"

On the Wheel

"You say his wife drove him to drink?"

"Yes, from the back seat."

Observant

A compartment on the Simplon Express contained an American, a German and an Englishman. The American, pulling at a long black cigar, filled the compartment with a thick Havana fog. The German pointed to the sign, "No Smoking," but the offender paid no attention. Puff, puff, puff went the human chimney. The angered Teuton motioned for a guard.

The American saw him coming and before the German had a chance to lodge complaint he ordered him expelled from the first-class space because he was traveling on a second-class ticket. The guard asked the German to show his ticket and promptly expelled him from the compartment and train.

"By Jove, deucedly clevah that!" commented the Britisher. "But how did you manage to spot the chap's ticket?"

"Very simple," replied the American between puffs. "I saw his pasteboard sticking out of his vest pocket, and as it was the same color as my own I knew it was second-class, so out he went!"

Safe Offer

A man astonished the want ad clerk by placing an ad offering $50 reward for the return of his wife's pet cat.

"Isn't that a high reward for a cat?"

"Not in this case. I drowned the cat."

Suggestion

"Son, why don't you play circus? It's great fun. First you make a sawdust ring."

"But where would I get the sawdust, dad?"

"Here's the saw. Just cut some of the firewood into fireplace lengths. And you can have all the sawdust you make."

Bank Director

"Can you direct me to the Merchants Bank?"

"Yes," said the boy, "you just follow me."

Upon arriving at the bank, the man asked, "How much do I owe you?"

"A quarter."

"Isn't that a rather high fee?"

"Not for a bank director."

Modest Beginning

"Is it true that this store sells everything from a package of pins to an airplane?"

"Quite true, madam."

"Well, a package of pins, please."

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Gotkool
WATER CANS
& COOLERS
GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today! . . . . . .
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